



Accuracy of +/-1/8" or +/- 1/16"

Repeatability of +1/8" or +1/16"

High Reliability

Low Maintenance

The L&J Engineering Model MCG 1020 Bottom Sediment & Water Gauge

The MCG 1020 is designed to gauge the Bottom Sediment and Water (BS&W) level in liquid storage tanks while providing long life and low maintenance operation under even the most adverse conditions such as work in a Class I, Division 1, Group C or Group D hazardous areas. With the ability to operate as a stand alone unit displaying tank level and/or controlling processes in the field it can be interfaced with other MCG Series products and assist in providing complete inventory control to a remote operator. All gauges are connected in parallel via a four wire communications and power bus to the receiver. The MCG 1020 consists of four components: an explosion proof housing, a float, a CPU/Memory Printed Circuit Board (PCB) with Liquid Crystal Display (LCD), and sensor modules. One sensor module is required for each 2 feet, 4 inches of liquid measurement.

The CPU/Memory PCB

The Central Processor Unit converts level data from the sensor modules into a precise liquid level reading. All local system functions are controlled by the CPU including validity checks on level data, optional valve and/or pump switching, and data transfers via the Communications/Interface module. The ROM contains program memory while the RAM stores current level information, sensor array boards, activated by magnets in the float, are read directly as digital data. No analog-to-digital conversion, no drifting, no re-calibration, no maintenance!

The MCG 1020 can be equipped with 4-20mA or digital output. Digital output allows connectivity to our "Tankway"- L&J's digital data highway designed specifically for tank farm environments, including valve and pump control.

Making Your Job Easier

The compact single board design simplifies maintenance and reduces spare parts stock. It features all of the standard temperature, analog, pulse, and discrete I/O capabilities. Designed with programmable zero and span for analog inputs and outputs, increased diagnostics, operator programmable engineering units, and simple plug-in modules for protocol emulations.

The MCG 1020 is equipped with comprehensive lightning and surge protection in an external conduit completely separate from the electronics housing. All boards are coated with a protective sealant to provide reliability even in extremely adverse operating conditions.

Applications

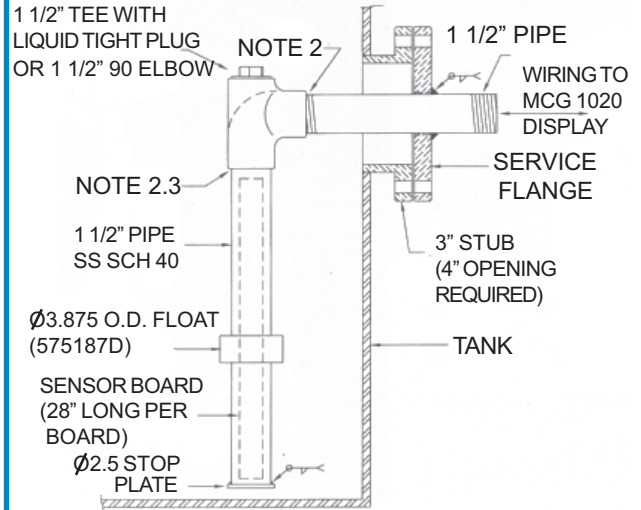
Extremely adverse operating conditions, Class 1, Division 1, Group C or Group D hazardous areas

Bottom Sediment and Water Level Measurement Gauging

SPECIFICATIONS

Accuracy:	+/- 1/8" (+/- 1/16" optional)
Repeatability:	+/- 1/8" (+/- 1/16" optional)
Range:	0-20'
Calibration:	Feet, inches, 1/8", .01; metric
Gauging Mediums:	Product Level, or BS&W
Ground Reading Display:	2 line x 16 character back lit display
Display Enclosure: Rating:	Exp. Proof, CL I, Div. 1, Group C&D
Sensor Pipe:	SS
Sensor Boards:	Encapsulated in epoxy resin
Temperature Probe:	Single point (Pt or Cu) Up to 14 points (Pt or Cu) using Temperature Average accessory
Internal Mount Only:	Up to 3 spot probes can be mounted to sensor housing for temperature averaging
SCADA Options:	2 Analog (4-20mA, 10-50mA inputs) 2 Analog (4-20mA, 10-50mA outputs) 8 Discrete Inputs 8 Discrete Outputs
Probe Housing Mounting:	Inside tank-sensor boards in housing, float outside Outside tank-sensor boards outside, float in housing
Float Material:	Nytrophyl, Nylon, or Stainless Steel
Float & Pipe Sizes:	304 Stainless Steel, Sch 40 pipe
Internal Mount:	1.5" pipe, float 4.0 OD x 1.5"H 2.0" pipe, float 4.75" OD x 1.5"H
External Mount:	2.0" pipe, float 1.75" OD x 6"H Nytrophyl 2.0" pipe, float 1.75" OD x 11" H-Nylon Hi pres.
Calibration:	Wireless, Infrared MCG 2150
Power Sources:	L&J Tankway, 110V AC, 220V AC 24V DC, 48V DC, or MCG 5000 Solar Power

DIMENSIONS



NOTE:

1. FLOAT AND SENSOR BOARD(S) SUPPLIED BY L&J. ALL OTHER ITEMS SUPPLIED BY END USER.
2. ALL THREADS MUST BE LIQUID TIGHT.
3. INSTALL FLOAT WITH HEAVY SIDE FACING DOWN PRIOR TO FINAL ASSEMBLY.

INFORMATION REQUIRED TO ORDER:

MCG 1020 (S) or (I) - AB - CD - EF - GH - IJ

TANK HEIGHT _____

MOUNTING/FLOATS _____

SIGNAL OUTPUTS _____

ANALOG/TEMPERATURE _____

POWER SUPPLY/CONTROL POINTS _____

MCG 1020SS BOTTOM SEDIMENT AND WATER GAUGE

Includes: Self Contained Microprocessor, 1/8" (3.2 mm) Accuracy, Direct Digital Sensor, Range of 0 - 2'3" (0 - 69 cm), Explosion Proof - Class I, Div. 1, Group C & D, Fully Encapsulated Sensor Probe, Nitrophenyl Float, Local LCD Display

MCG 1020SSI BOTTOM SEDIMENT AND WATER GAUGE

Includes: Self Contained Microprocessor, 1/8" (3.2 mm) Accuracy, Direct Digital Sensor, Range of 0 - 2'3" (0 - 69 cm), Explosion Proof - Class I, Div. 1, Group C & D, Fully Encapsulated Sensor Probe, Nitrophenyl Float, Local LCD Display, Infrared Remote Capability

MODEL NUMBER SELECTION:

The model number will have a base number, **MCG 1020S** (for the MCG 1020SS) or **MCG 1020I** (for the MCG 1020SSI), followed by 10 digits. These digits will represent 5 sets of option tables.

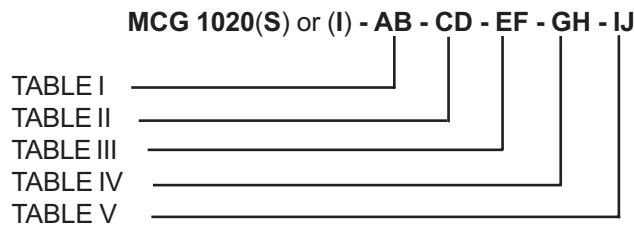


TABLE I - TANK HEIGHT

AB

Enter Tank Height in Feet (Single Accuracy)
or Meters (Double Accuracy)

TABLE II - MOUNTING / FLOATS

First digit to reference pipe size only, pipe supplied by customer

C

- 1 - 1.5" 316 S.S. Pipe
- 2 - 2" 316 S.S. Pipe
- 3 - 2.5" 316 S.S. Pipe

Second digit refers to Probe Housing Mounting (Internal - Inside Tank, External - Outside Tank)

D

- 1 - External S.S. float
- 2 - External nitrophenyl float
- 3 - External nylon float
- 4 - Internal S.S. float
- 5 - Internal nitrophenyl float
- 6 - Internal nylon float

TABLE III - SIGNAL OUTPUTS

EF

- 00 - None
- 02 - L&J Tankway
- 04 - 4-20mA Output
- 06 - L&J Tankway/Dual 4-20mA (Level & Temp.)
- 08 - Dual 4-20mA Out (Level & Temp.)
- 10 - GPE 31422, 31423
- 12 - Varec 4 Wire
- 14 - Varec Matrix
- 16 - L&J Tankway/4-20mA Out (Level)
- 18 - RS - 232 24VDC
- 20 - L&J Tankway/Serial Output
- 22 - 4-20mA Out/Serial Output
- 24 - RS-485 Output
- 26 - RGL/NMC Interface
- 28 - Honeywell CLM Mod Buss on L&J Tankway
- 30 - Honeywell Mod Bus/485 Highway
- 32 - Enraf
- 34 - Varec (HART Mod Buss) 4100MFT

TABLE IV - ANALOG / TEMPERATURE

GH

- 00 - None
- 02 - Average Temperature***
- 03 - Average Temperature***, with Barriers
- 05 - 4-20 mA Input (non-isolated)
- 06 - 4-20 mA, with Average Temperature***
- 11 - Spot Temperature**
- 14 - Spot Temperature**, with Barriers
- 17 - 4-20 mA, with Spot Temperature**
- 36 - 4-20 mA, with Average Temperature*** with Barriers
- 37 - 4-20 mA, with Spot Temperature**, with Barriers

Calibration Type (Copper or Platinum) is software-selectable in this model.

** *RTD Probe must be ordered separately.*

*** *Requires MCG 2350 Average Temperature Assembly and Average Temperature bulb (ordered separately).*

TABLE V - POWER SUPPLY / CONTROL POINTS

I

- 0 - 48 VDC Standard L&J Tankway
- 1 - 24 VDC
- 2 - 110 VAC
- 3 - 220 VAC
- 4 - 48 VAC
- 5 - Solar Ready

J

- 0 - No Control Points
- 1 - 1 Pum or Valve; 2 discrete in / 2 discrete out
- 2 - 2 Pumps or Valves; 4 discrete ins / 4 discrete outs
- 3 - 4 Pumps or Valves; 8 discrete ins / 8 discrete outs
- 4 - 4 Alarm Contacts w/ 2 discrete ins / 2 discrete outs
- 5 - 4 Alarm Contacts w/ 4 discrete ins / 4 discrete out
- 6 - 4 Alarm Contacts w/ 8 discrete ins / 8 discrete outs
- 7 - 2 Alarm Contacts
- 8 - 4 Alarm Contacts