



- Accuracy / repeatability of 1/32 inch (0.8mm)
- Product and Interface, custody transfer
- Wireless Infrared Calibration
- Advanced flash memory technology
- Ground level display eliminates tank climbing
- Minimal moving parts (3) ensure reliability
- Monitor field / internal parameters
- Temperature, pressure and density

The L&J Engineering Model MCG 1500SFI Servo Gauge

The MCG 1500SFI is the most compact and lightest servo available today.

Brushless Design Eliminates Moving Parts

With only 3 moving parts (drum assembly, gear assembly, and stepper motor) and only two PC boards (the CPU and the strain gauge amplifier), L&J has minimized parts to ensure reliability. Brushless design eliminates the inherent problem of friction and wear on the contacts.

Calibration Made Simple

The versatile MCG 1500SFI incorporates various self-calibration procedures to ensure absolute integrity as well as accuracy. Routines which are built into the processor have been designed to compensate for any possible product build-up on the displacer or any "give" or "play" in the cable.

Engineered For High Performance

1/32" accuracy coupled with the 1/32" repeatability provides the highest accuracy available in servo technology. The servo housing is divided into two sections, the drum chamber and the electronics chamber. The drum chamber is isolated from the electronics chamber by a magnetic coupling. The electronic chamber is a gas tight, explosion proof housing which isolates the electrical components from both the product environment and the atmosphere. The MCG 1500SFI typically communicates using the standard L&J "Tankway" 4-wire data highway, yet simple plug-in modules can be utilized to provide for emulation of most existing, as well as custom field protocols or analog outputs.

Ground Level Display

The optional Ground Level Display (MCG 1350 GLD) is a remote LCD display which is identical in form and function to the display on the main unit. It enables complete programming and calibration functions via the hand-held I/R calibrator, MCG 2150.

Inventory Management

The MCG 1500SFI servos, which transmit level and temperature data, can be remotely accessed by a computer/receiver such as the MCG 3900 via the 4-wire "Tankway." Product temperature is obtained by using a 3-wire R.T.D. (copper or platinum) which is connected to an on-board analog-to-digital converter. It is no longer necessary to climb to the top of the tank to access the desired information or perform any of the programming functions. Simple plug-in interface modules emulate most existing, as well as custom field protocols or analog outputs. New or updated programs can be downloaded to any MCG 1500SFI into its on-board flash memory "on the fly" to incorporate communication protocol changes and additional functionality.

Applications

Density Measurement

Product and BSW Level Gauging in process industries

Liquid Gas Propane (High Pressure Application)

Custody Transfer



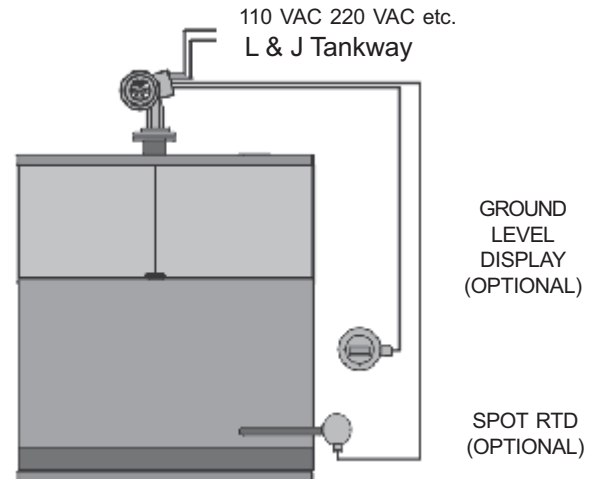
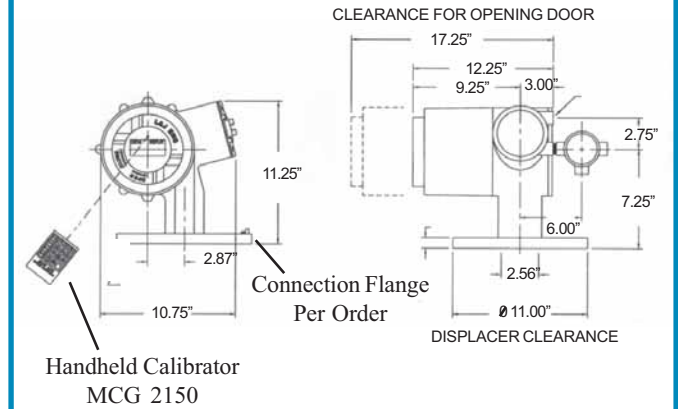
UK Distributor
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SPECIFICATIONS

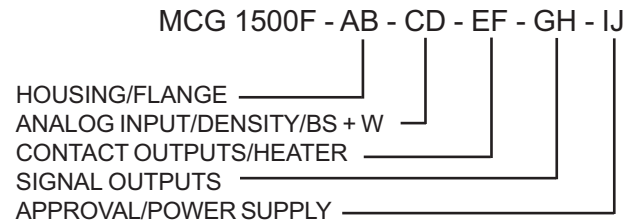
Resolution:	1/64 Inch (0.4mm)
Accuracy:	1/32 Inch (0.8mm)
Sensitivity:	+ .01 Inch (0.25mm)
Repeatability:	1/32 Inch (0.8mm)
Measuring Range:	0 - 75' (22m) (standard) 0 - 150' (46m) (optional)
Temp. Accuracy:	0.5° F (.3° C)
Temp. Resolution:	0.1° F (.06° C)
Temp. Measurement:	Single, Dual or Triple RTD *Temperature Averaging
Density Accuracy:	5 kg/m ³
Level Encoding:	Optical
Display:	4-line x40 character LCD
Communication:	L&J "Tankway", Others optional
Baud Rate:	300-9600 Selectable
Field Wires:	4 Field Wires(Tankway)up to 128 MCG Field Devices per Highway
Static Power Consumption:	200 mA at 110 VAC
Power Options:	220 VAC, 110 VAC, 65 VAC, 48 VAC, 24 VAC, 48 VdC, 24 VdC
Lightning Protection:	Comprehensive Surge Protection
Control Option:	2 points (Valves and Pumps) (2DI, 6DO) 6 - Contacts
I/O Option:	Two 4-20mA out, Three 4-20mA in (Isolated Outputs Optional)
Operating Temperature:	Drum Chamber: -40° F to 600° F (-40° C to 315° C) Elec. Chamber: -40° F to 185° F (-40° C to 85° C)
Mounting:	2" 150lb. ANSI Flange Standard; other sizes and DIN sizes optional
Body Material:	AL, 316 SS
Weight:	AL-25 lbs, (11.37 kg)
Pressure:	Atmospheric (25 psi), 150 psi optional, 300 psi optional
Safety Approvals:	UL / CUL -Explosion Proof, Class I, Div.1 Group C&D, (Group B optional) CENELEC / ATEX II 1/2 G EEx d IIB T6

*requires MCG 2350 accessory

DIMENSIONS



INFORMATION REQUIRED TO ORDER:



All designs subject to change. Certified dimensions and specifications available upon request.

MODEL NUMBER SELECTION:

The model number will have a base number, **MCG 1500F**, followed by 10 digits. These digits will represent 5 sets of option tables.

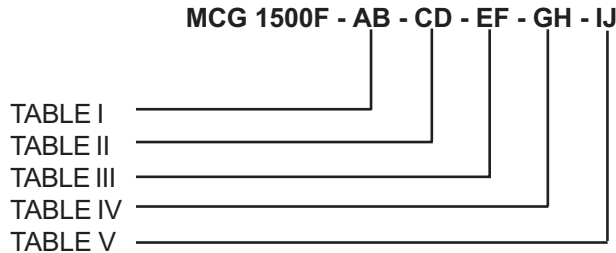


TABLE I - HOUSING/FLANGE

- AB**
- 02 - 150 #, ANSI 2" RF, S.S. Flange - 316 S.S. housing
 - 03 - 300 #, ANSI 2" RF, S.S. Flange - 316 S.S. housing
 - 05 - 150 #, ANSI 4" RF, S.S. Flange - 316 S.S. housing
 - 06 - 300 #, ANSI 4" RF, S.S. Flange - 316 S.S. housing
 - 08 - 150 #, ANSI 6" RF, S.S. Flange - 316 S.S. housing
 - 09 - 300 #, ANSI 6" RF, S.S. Flange - 316 S.S. housing
 - 10 - 150 #, ANSI 6" FF, Al. Flange - Aluminum housing
 - 11 - 150 #, ANSI 2" FF, Al. Flange - Aluminum housing
 - 12 - 150 #, ANSI 2" RF,C.S. Flange - Aluminum housing
 - 13 - 150 #, ANSI 4" FF, Al. Flange - Aluminum housing
 - 14 - 150 #, ANSI 4" RF,C.S. Flange - Aluminum housing
 - 15 - 150 #, ANSI 4" FF,C.S. Flange - Aluminum housing
 - 16 - 150 #, ANSI 6" RF,C.S. Flange - Aluminum housing
 - 18 - 150 #, ANSI 8" RF,C.S. Flange - Aluminum housing
 - 19 - 150 #, ANSI 10"RF,C.S Flange - Aluminum housing
 - 22 - 150 #, ANSI 8" RF,S.S. Flange - 316 S.S. housing
 - 23 - 300 #, ANSI 8" RF,S.S. Flange - 316 S.S. housing
 - 24 - 150 #, ANSI 3" FF, Al. Flange - Aluminum housing
 - 26 - 150 #, ANSI 8" FF, Al. Flange - Aluminum housing
 - 28 - 150 #, ANSI 6" RF,C.S. Flange - 316 S.S. housing
 - 29 - 300 #, ANSI 6" RF,C.S. Flange - 316 S.S. housing
 - 30 - 150 #, ANSI 8" RF,C.S. Flange - 316 S.S. housing
 - 31 - 300 #, ANSI 8" RF,C.S. Flange - 316 S.S. housing
 - 32 - 150 #, ANSI 10" RF,S.S. Flange - 316 S.S. housing
 - 33 - 300 #, ANSI 10" RF,S.S. Flange - 316 S.S. housing
 - 43 - 300 #, ANSI 3" RF,S.S. Flange - 316 S.S. housing
 - 44 - 150 #, ANSI 3" RF,C.S. Flange - Al. housing
 - 45 - 150 #, ANSI 3" RF,S.S. Flange - 316 S.S. housing
 - 56 - 150 #, ANSI 6" RF,C.S. Flange - Al. Anodized housing
 - 58 - 150 #, ANSI 8" RF,C.S. Flange - Al. Anodized housing

TABLE II- DENSITY/BS & W/ANALOG INPUT

C

- 0 - Level Only
- 1 - Level and BS&W
- 2 - Level and Density (Single point calc.)
- 3 - Level, BS&W, and Density
- 4 - Site Specific (Modes)

D

- 0 - No Analog Input
- 1 - Spot Temperature*
- 2 - Average Temperature**
- 3 - Analog In for Density Measurement (from external device)

- 4 - Analog In and Spot Temperature*
- 5 - Analog In and 2 Spot Temperatures*
- 6 - Analog In and Average Temperature**
- 7 - 2 Analog In and Average Temperature
- 8 - 2 Additional Discrete Inputs
- 9 - 2 Additional Discrete Inputs and Spot Temperature

A - Analog In and 3 Spot Temperatures*

**RTD Probe must be ordered separately.*

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

TABLE III- CONTACT OUPUTS/HEATER

EF

- 00 - None
- 01 - 2 Dry Contacts
- 02 - 4 Dry Contacts
- 03 - 6 Dry Contacts

- 20 - Heater
- 21 - Heater, 2 Dry Contacts
- 22 - Heater, 4 Dry Contacts
- 23 - Heater, 6 Dry Contacts

TABLE IV - SIGNAL OUTPUTS

GH

- 01 - None
- 02 - L&J Tankway
- 03 - 4-20mA Analog Out
- 04 - L&J Tankway, Dual 4-20mA Out, Level and Temperature
- 05 - Dual 4-20mA Out, Level and Temp.
- 06 - GPE 31422, 31423
- 07 - Varec 4-Wire
- 08 - Varec Matrix
- 09 - L&J Tankway, 4-20mA Out
- 10 - Serial Output Only (RS-232)
- 11 - RS 485 (2-wire) Mod Buss
- 12 - L&J Tankway, Serial Output
- 13 - 4-20mA Analog Out and Serial Out (RS 232)
- 14 - RS 485 (4-wire) Mod Buss
- 15 - RS 485 (2-wire) and 4-20mA Out
- 16 - RS 485 (2-wire) L&J Tankway

- 18 - Profi Buss (485)
- 19 - L&J Tankway, 4-20mA Out, Serial Out
- 21 - Dual 4-20mA Out - Level and Temperature
- 22 - Enraf Interface
- 23 - Dual 4-20mA Out, Level and BS&W
- 24 - Dual 4-20mA Out, Level and Density
- 25 - Varec (HART Bus) 4100MFT
- 26 - Honeywell CLM Mod Buss on L&J Tankway
- 27 - Honeywell CLM Mod Buss on L&J Tankway, 4-20mA Out
- 28 - Honeywell CLM Mod Buss on RS 485 Highway (2-wire)
- 29 - Honeywell CLM Mod Buss on RS 485 Highway (4-wire)
- 30 - Mod Buss on L&J Tankway, 4-20mA Out
- 31 - Tiway
- 36 - Full Mod Buss on L&J Tankway
- 38 - Full Mod Buss on RS 485 Highway (2-wire)
- 39 - Full Mod Buss on RS 485 Highway (4-wire)
- 40 - ENRAF Interface and 4-20mA Out

TABLE V - POWER SUPPLY

IJ	
08	- 110 VAC (50-60 Cycle)
09	- 24 VDC
10	- 48 VDC
11	- Solar Ready (Solar Panels not included)
12	- 220 VAC (50-60 Cycle)
13	- 48 VAC
14	- 24 VAC
30	- 220 VAC/(CE / ATEX)
48	- 65 VAC

OTHER ITEMS AVAILABLE (Please Specify When Ordering)

2 discrete inputs for park, BS&W (std.)
Additional inputs available.

NOTES: INFORMATION REQ'D WHEN ORDERING

- Specify English or Metric
- Type of Product
- Specify Displacer Size*
- Ball Valve and Inspect. Chamber Req'd
- Stilling Well & Size (if any)
- Safety Approval Required (UL, CUL, or CENELEC / ATEX)
- Operating Pressure
- Specific Gravity of Product
- Specify Displacer Material**
- Maximum Tank Pressure
- Exact Tank Height

DISPLACERS**

1.5" Displacer TFE	# 810730	2" Displacer 316S.S.	#810515
2" Displacer TFE	# 810418	4" Displacer 316S.S.	#810622
4" Displacer TFE	# 810419	*6" Displacer 316S.S.	#810731
*6" Displacer TFE	# 810358		

* Standard Displacer Size 5.7".

** Standard Displacer Material: (Tecfluorfil) Carbon Filled Teflon (Other materials available).

The MCG 1500SFI requires a MCG 2150 or MCG 2151 for calibration and setup. Ordered separately.

1500SFI UPGRADE KIT FOR 1500XL AND SFI UNITS AVAILABLE

Kit includes CPU, Display and Scale Board



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