

User's Guide

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FMG-1000-DLA **Data Logger**



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The information contained in this document is believed to be correct, but OMEGA accepts no liability for any errors it contains, and reserves the right to alter specifications without notice.

WARNING: These products are not designed for use in, and should not be used for, human applications.

GENERAL INFORMATION

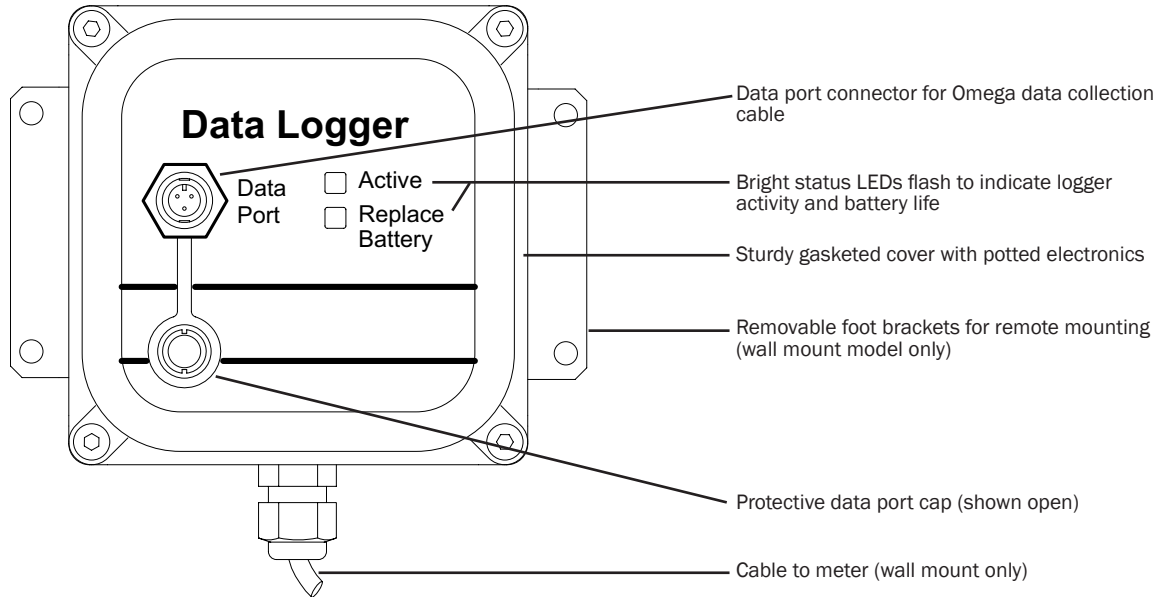
The FMG-1000-DLA is a battery-powered data logger that can be used with most Omega flowmeters. It stores pulses for up to 3 years, depending on the user-selected frequency of reading. Indicator lights on the unit flash to indicate when it is functioning and when the battery is low. Housings are rugged cast aluminum, gasketed for environmental protection.

When an FMG-1000-DLA logger is placed into operation, it is easily set up using a laptop computer. Data is also retrieved

from the FMG-1000-DLA by means of a laptop and can be analyzed on the laptop or easily loaded on a desktop computer for analysis.

Omega software (ordered separately) is required for the downloading, storing, viewing, graphing, charting and printing of data in several formats. The software requires a PC with Windows 98, NT, 2000, XP, Vista, or Windows 7; CD-Rom drive; 800 x 600 screen resolution; serial port or USB/serial adapter; and an Omega data cable.

FEATURES



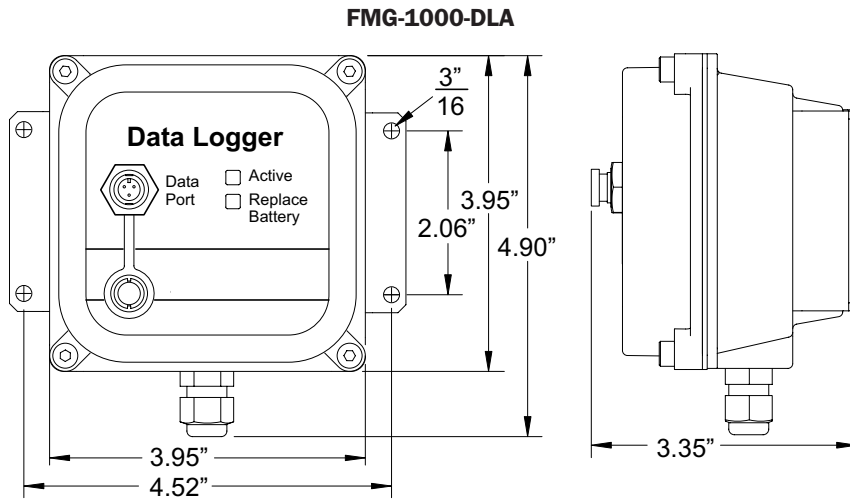
SPECIFICATIONS*

Power	3.6 Vdc lithium battery (included)		
Battery Life	~3 years (varies with sampling interval)		
Temperature	0° to 130° F (-18° to 54° C)		
Rate Units	Volume	mL, liter, gallon, Imperial gallon, cubic foot, cubic meter, million gallon	
	Time	Seconds, minutes, hours, days	
Total Units	Liter, gallon, Imperial gallon, cubic foot, cubic meter, million gallon, acre-foot, acre-inch, megaliter, thousand-gallon		
Data Storage Capacity	Capacity	at	Sampling Interval
	11 days	at	15 seconds
	22 days	at	30 seconds
	44 days	at	60 seconds
	6 months	at	240 seconds
	1 year	at	480 seconds
	3 years	at	1450 seconds
Maximum Input Frequency	500 Hz		
Indicators	Low battery; Power		
Memory Wraparound	Selectable options (Stop or Overwrite)		
Clock Accuracy	10 minutes/month (.02%)		

*Specifications subject to change.

DIMENSIONS & CONNECTIONS

DIMENSIONS

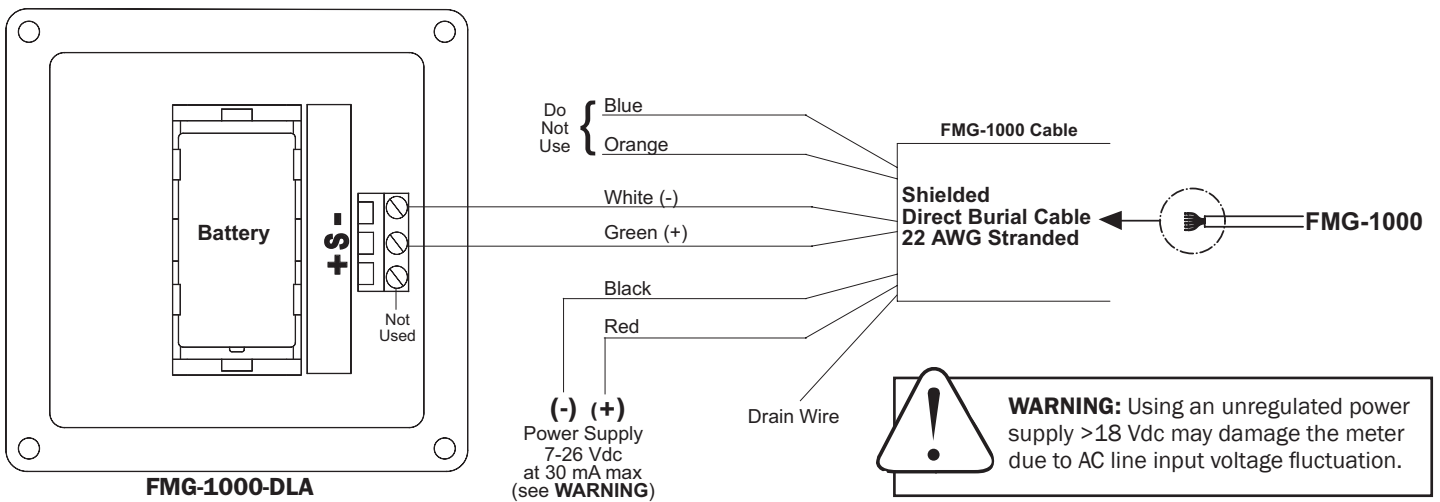


CONNECTIONS

To connect the FMG-1000 to the FMG-1000-DLA, remove the four cover screws on the data logger with a 5/32" Allen wrench. Connect the leads as shown in the diagram below.

Replace the cover and tighten the screws evenly, assuring that the gasket on the FMG-1000-DLA is visibly compressed all around.

Data Logger



WARNING: Using an unregulated power supply >18 Vdc may damage the meter due to AC line input voltage fluctuation.

CAUTION: Do not apply external power to the Data Logger.

The **FMG-1000** requires a power source of 7 to 26 Vdc at 30 mA max (see **WARNING**). The same cable that provides power also serves as a pulse output if needed for remote reading, data logging, signal conversion, or telemetry.

FMG-1000 Cable Color Codes

- Orange (+) and Blue (-):** Serial Output (Do Not Use)
- Green (+) and White (-):** Pulse Output, 30 Vdc max, 10 mA max
- Red (+) and Black (-):** External Power, 7-26 Vdc at 30 mA max
- Drain:** Connect to earth ground (see **WARNING**)

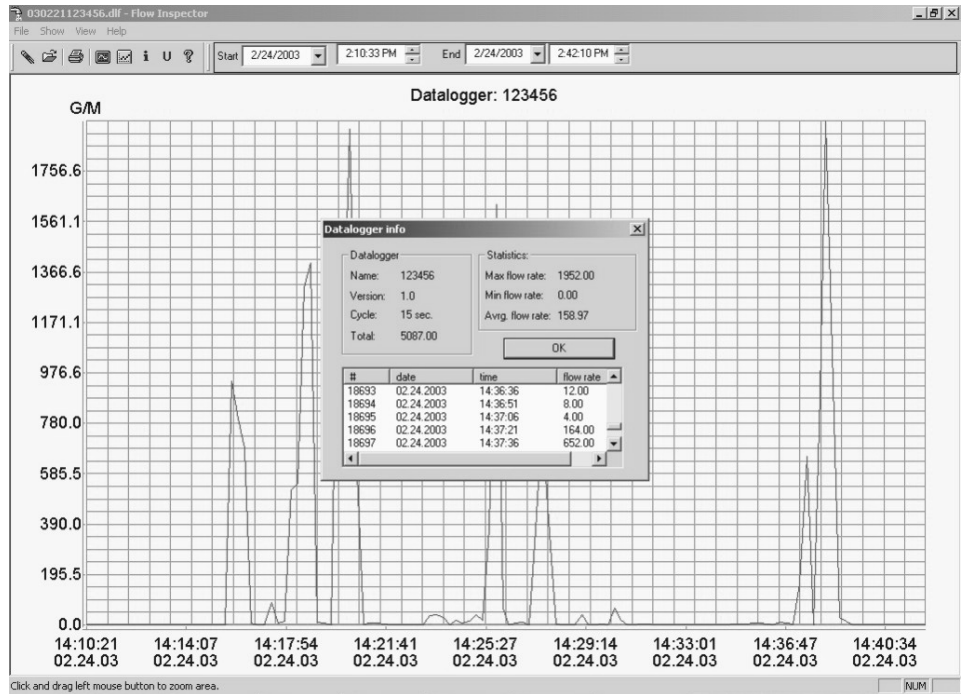
CONNECTIONS & TROUBLESHOOTING

OPERATION

Omega V.2 software is required for operation. Please consult your manual for instructions in loading the software onto your computer, setting up your datalogger for use, downloading, storing, and analyzing your data.

FMG-1000-DLA Software Capabilities:

- Manage multiple loggers
- Record up to 3 years of data (depending on sampling interval)
- View current rate and total
- Download files from FMG1000-DLA to laptop
- Display flow information as a graph
- Display data in preferred units
- Display average and maximum/minimum flow rate for any selected time period
- Zoom in to graph any time period
- Show daily flow totals in table format
- Append multiple files
- Print graphs and tables
- Export data to a simple text (.txt) file or to an Excel spreadsheet (.csv) for analysis



TROUBLESHOOTING

Problem	Probable Cause	Try...
Laptop screen reads "No connection" and "Active" light is <u>NOT</u> blinking	FMG-1000-DLA is transmitting data. Wait two minutes before taking action. Dead battery in FMG-1000-DLA	Wait for "Active" light to blink Replace battery
Laptop screen reads "No connection," but "Active" light <u>IS</u> blinking	Loose cable Bad cable	Tighten cable Replace cable
Flow rate incorrect	K-factor setting is incorrect	Make sure K-factor in FMG-1000-DLA matches flow sensor
No flow rate	Damaged flow sensor Broken wire	Mechanical: See if rotor spins freely EX Magmeter: See if "Status LED" indicator is blinking Check for flow rate



WARRANTY/DISCLAIMER

OMEGA ENGINEERING, INC. warrants this unit to be free of defects in materials and workmanship for a period of **13 months** from date of purchase. OMEGA's WARRANTY adds an additional one (1) month grace period to the normal **one (1) year product warranty** to cover handling and shipping time. This ensures that OMEGA's customers receive maximum coverage on each product.

If the unit malfunctions, it must be returned to the factory for evaluation. OMEGA's Customer Service Department will issue an Authorized Return (AR) number immediately upon phone or written request. Upon examination by OMEGA, if the unit is found to be defective, it will be repaired or replaced at no charge. OMEGA's WARRANTY does not apply to defects resulting from any action of the purchaser, including but not limited to mishandling, improper interfacing, operation outside of design limits, improper repair, or unauthorized modification. This WARRANTY is VOID if the unit shows evidence of having been tampered with or shows evidence of having been damaged as a result of excessive corrosion; or current, heat, moisture or vibration; improper specification; misapplication; misuse or other operating conditions outside of OMEGA's control. Components in which wear is not warranted, include but are not limited to contact points, fuses, and triacs.

OMEGA is pleased to offer suggestions on the use of its various products. However, OMEGA neither assumes responsibility for any omissions or errors nor assumes liability for any damages that result from the use of its products in accordance with information provided by OMEGA, either verbal or written. OMEGA warrants only that the parts manufactured by the company will be as specified and free of defects. OMEGA MAKES NO OTHER WARRANTIES OR REPRESENTATIONS OF ANY KIND WHATSOEVER, EXPRESSED OR IMPLIED, EXCEPT THAT OF TITLE, AND ALL IMPLIED WARRANTIES INCLUDING ANY WARRANTY OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE HEREBY DISCLAIMED. LIMITATION OF LIABILITY: The remedies of purchaser set forth herein are exclusive, and the total liability of OMEGA with respect to this order, whether based on contract, warranty, negligence, indemnification, strict liability or otherwise, shall not exceed the purchase price of the component upon which liability is based. In no event shall OMEGA be liable for consequential, incidental or special damages.

CONDITIONS: Equipment sold by OMEGA is not intended to be used, nor shall it be used: (1) as a "Basic Component" under 10 CFR 21 (NRC), used in or with any nuclear installation or activity; or (2) in medical applications or used on humans. Should any Product(s) be used in or with any nuclear installation or activity, medical application, used on humans, or misused in any way, OMEGA assumes no responsibility as set forth in our basic WARRANTY/DISCLAIMER language, and, additionally, purchaser will indemnify OMEGA and hold OMEGA harmless from any liability or damage whatsoever arising out of the use of the Product(s) in such a manner.

RETURN REQUESTS/INQUIRIES

Direct all warranty and repair requests/inquiries to the OMEGA Customer Service Department. BEFORE RETURNING ANY PRODUCT(S) TO OMEGA, PURCHASER MUST OBTAIN AN AUTHORIZED RETURN (AR) NUMBER FROM OMEGA'S CUSTOMER SERVICE DEPARTMENT (IN ORDER TO AVOID PROCESSING DELAYS). The assigned AR number should then be marked on the outside of the return package and on any correspondence.

The purchaser is responsible for shipping charges, freight, insurance and proper packaging to prevent breakage in transit.

FOR **WARRANTY** RETURNS, please have the following information available BEFORE contacting OMEGA:

1. Purchase Order number under which the product was PURCHASED,
2. Model and serial number of the product under warranty, and
3. Repair instructions and/or specific problems relative to the product.

FOR **NON-WARRANTY** REPAIRS, consult OMEGA for current repair charges. Have the following information available BEFORE contacting OMEGA:

1. Purchase Order number to cover the COST of the repair,
2. Model and serial number of the product, and
3. Repair instructions and/or specific problems relative to the product.

OMEGA's policy is to make running changes, not model changes, whenever an improvement is possible. This affords our customers the latest in technology and engineering.

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