



READ THIS FIRST

Installation and Startup Guide

Model IZMSG Electromagnetic Flowmeter

Version 1.1 Document 1176



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This product carries a one (1) year warranty against manufacturers defects. A complete warranty statement is available by contacting Anderson, or on our website.

PRODUCT DESCRIPTION

The Anderson IZMSG Flowmeter is a precision instrument that mounts directly to the process line, and provides real-time information about the process. The IZMSG measures voltage generated from conductive product passing through an electromagnetic field. The resulting information that the IZMSG generates can be used to provide an instantaneous indication of the rate of a liquid or collected over time to indicate a total of what has passed through the pipe.

Using the above operating principles, the IZMSG can accurately provide outputs for control or indication of the flow process.

SPECIFICATIONS

Flow Tube
Connections: Sanitary Tri-Clamp®, Cherry I-line
Construction:
Housing: 304 SS
Lining: PFA
Electrodes: 316L SS
Connection Box: 304 SS

Wiring Connections: water tight cord grip and 1/2" NPT
NPT SS conduit adapter sets
supplied with each flow tube

Max Product Temp: 325°F/165°C
Max Inlet Pressure: 145 psi / 10 bar
Min Inlet Pressure: 1.4 psi absolute / 0.1 bar
Min Fluid Conductivity: 5 µS / cm

Converter
Power Requirements: Field selectable (by jumpers)
115VAC/50-60 Hz/single phase
230VAC/50-60 Hz/single phase
10-30VDC available
15VA (15 Watts)

Fuse Protection: 315mA slow response 5x20mm
Scaled Digital Outputs: Two (2) independent, scalable
pulsed outputs
Open collector 30V@80mA
Opto-isolated
1:1 pulse to pause ratio,
1000 Hz Max.

Output Control Signal: Open collector 30V@80mA
Selectable from following:
forward flow - error signal

Analog Output: 4-20mA or 0-20mA selectable
Max. resistive load 500 ohms

Display(option 1 & 2): Second passive analog output with
Hart Communication ver. 6

Discrete Inputs: Suspended Operation
Remote reset internal totalizer
10-30V input from 3k Ohm internal
resistor

Rezero Feature: Pushbutton for automatic hydraulic re-
zero of flow tube during field installation

Serial Comm: RS485 serial interface
Control System Bus protocol,

Integral Display
(D option) and Keypad: 2-line, 20 digit alphanumeric backlit
LCD display. 25 key membrane keypad

Interconnecting Cable: 25ft. supplied as standard with factory
prepared ends.

Operating Temp: -4°F to 140°F (-20°C to 60°C)
Converter Construction: Cast aluminum with SGBL corrosion-
resistant coating

Entry Wiring
Connections: Water tight cord grip and 1/2"
female SS NPT conduit adapter

Size	Operational Flow Range	
	gal/min	ltr/min
10	0.14 - 14	0.53 - 53
15	0.3 - 30	1.13 - 113
25	0.8 - 80	3.0 - 300
32	1.3 - 130	5.0 - 500
50	3 - 300	11.7 - 1166
65	5.2 - 525	20 - 2000
80	8 - 800	30 - 3000
100	12 - 1200	46 - 4667

Accuracy ±.20% of rate ± 1 mm/sec

UNPACKING

Product Check:

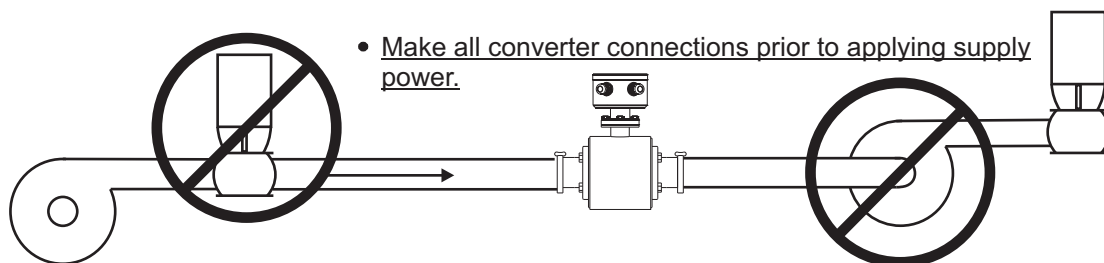
Upon receipt, carefully inspect the product for damage to cables, connectors and sensor face. Damage claims should be made directly with carrier.

Major items are:

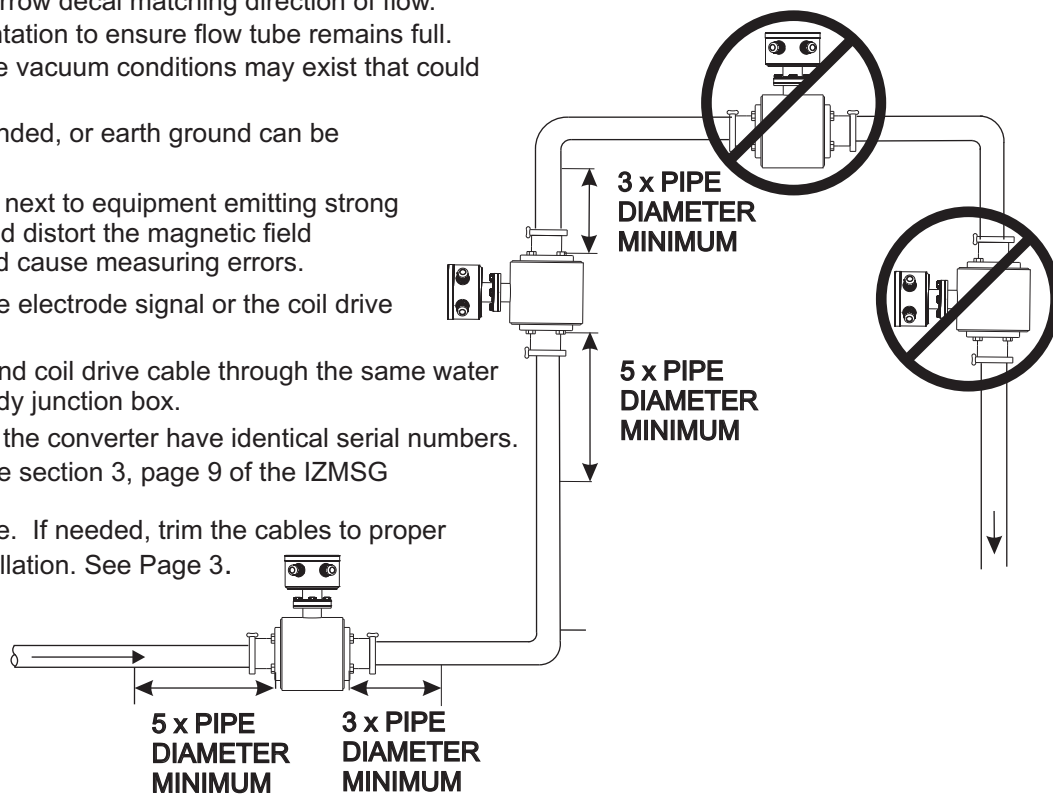
- IZMSG configuration record sheet
- meter converter
- meter body with connection adapters assembled to the flow tube
- cord grips and conduit adapter sack cables assembled to ordered length
- manual

IZMSG INSTALLATION

Warning: • Before welding on a pipeline with a flowmeter installed, disconnect the signal electrode wires from the meter body at terminals 14, 16, and 18 at the converter.



- Install meter body in-line with arrow decal matching direction of flow.
- Install in process line with orientation to ensure flow tube remains full.
- Do not install meter body where vacuum conditions may exist that could collapse the Teflon liner.
- Pipeline must be properly grounded, or earth ground can be landed to the flow tube lug.
- Avoid installing the meter body next to equipment emitting strong electromagnetic fields that could distort the magnetic field generated by the flowmeter and cause measuring errors.
- Never bundle or route either the electrode signal or the coil drive cable near any AC power line.
- Do not route electrode signal and coil drive cable through the same water tight connector at the meter body junction box.
- Make sure the meter body and the converter have identical serial numbers.
- For Cable Field Preparation see section 3, page 9 of the IZMSG Instruction Manual.
- Keep cable as short as possible. If needed, trim the cables to proper length at converter end of installation. See Page 3.



CONVERTER INSTALLATION

To protect the IZMSG converter from damage select a location that meets the following requirements.

- Ambient temperature is between -4 and 130 °F.
- Unit is protected from excessive vibration.
- Limit exposure of water or product to the converter housing.
- Wiring connections should be protected against moisture entry.
- For units with an integral display a convenient viewing location should be selected.

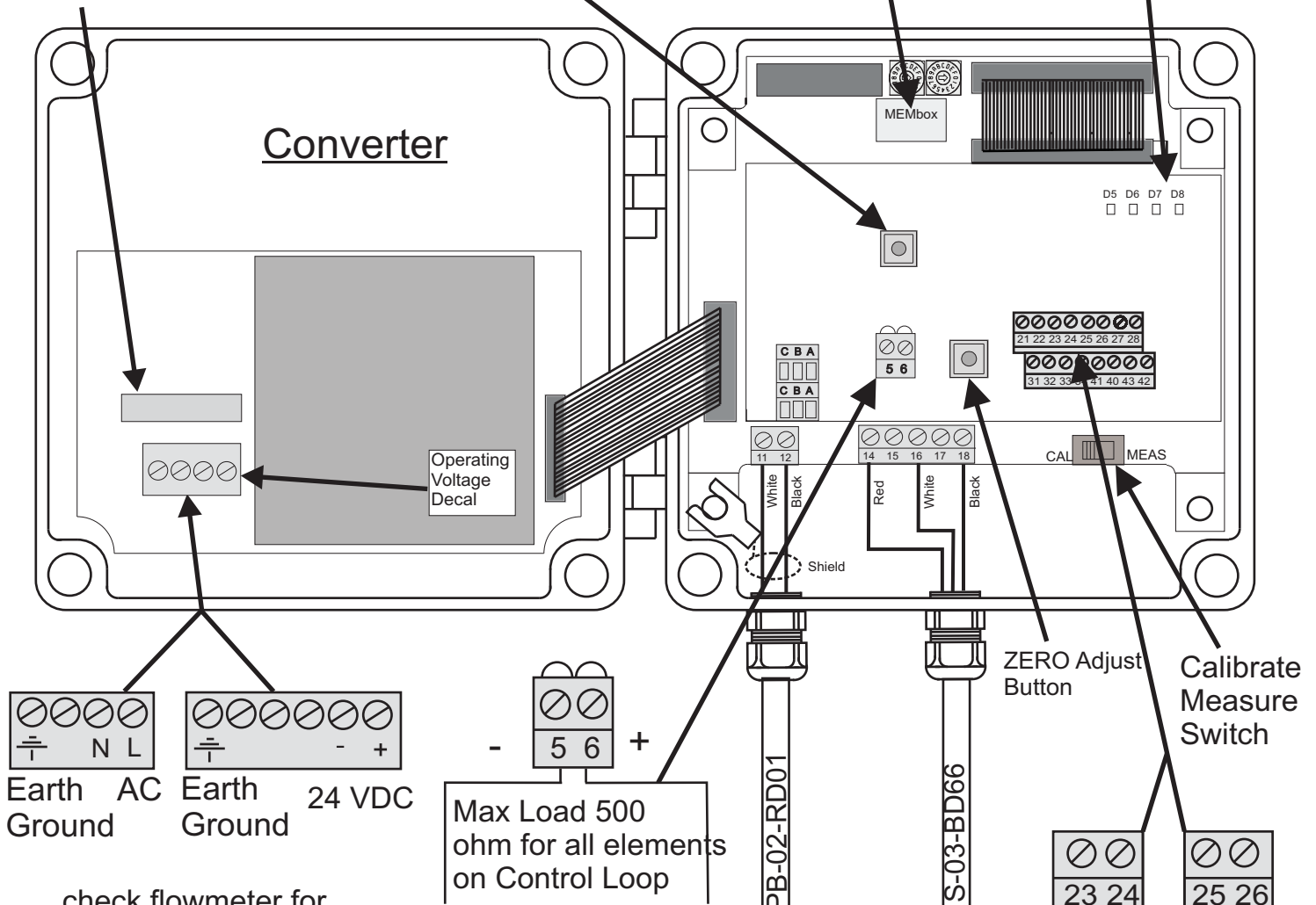
INTERNAL TERMINATIONS / ADJUSTMENTS

Fuse
AC T315 mA
DC M2 A

Abort / Reset
(after parameter change)

MEMbox
Flowtube Specific
Memory

LED Indicator
D7 - Flow Status
D8 - Error Status



check flowmeter for
voltage requirements

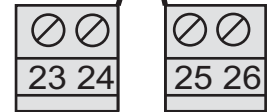
Input Power

Max Load 500
ohm for all elements
on Control Loop

Active Analog Output 4-20mA

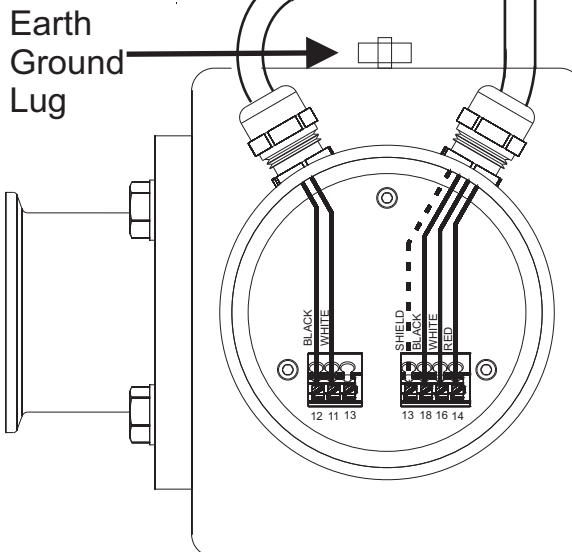
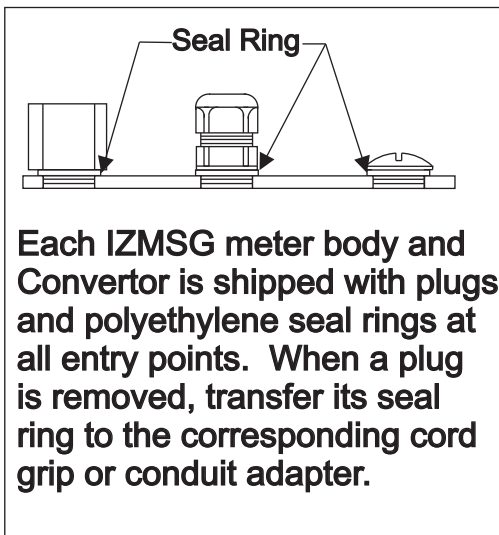
ZERO Adjust
Button

Calibrate
Measure
Switch



COM SIG Digital Output: 2
COM SIG Digital Output: 1

Open Collector Pulsed Output



Start-Up and Commissioning

Checking Flowmeter Configuration

All IZMSG Electromagnetic Flowmeters are flow tested and factory calibrated with water according to the flow conditions reported by the customer at the time of order. The factory pre-programs the calibration data unique to each flowmeter and the operational parameters necessary to meet the customer's specific application requirements. The pre-programmed data is retained in EEPROM memory in the converter. Therefore, the only on-site adjustment necessary will be the hydraulic zero adjustment.

The nameplate affixed to the converter provides information on the flowmeter configuration. Before operating the flowmeter, make sure that the serial number of the meter body matches the serial number on the converter. Attempting to operate an unmatched flowmeter pair will result in improper operation or malfunction.

Hydraulic Zero Adjustment

Utilizing the following procedure will establish a no flow reference point compliant with the specific hydraulic conditions of the application.

1. Make sure the wiring between the meter body and converter is set in the final position. All wiring connections must be in proper terminal locations with tight dry connections.
2. Allow 5 minutes for the flowmeter to warm up to operating temperature. In order to maintain thermal stability, Close but do not tighten the converter cover during the hydraulic zero adjustment procedure, except when access to the converter is necessary to press buttons or observe the LED status.
3. Fill the flow tube of the meter body with liquid or water. The electrical conductivity of the product must be greater than 100 micromhos. It is essential that the fluid remain static (no flow or leakage whatsoever) and there is no entrained air in the product during the hydraulic zero adjustment procedure.
4. Open the cover of the converter. Slide the CAL/MEAS switch (Identified on page 3 of the Startup Guide) to the CAL position.
5. Press the Zero Adjust pushbutton (Identified on page 3 of the Startup Guide) momentarily (about two seconds) and then release.
6. Wait 40 seconds for the completion of the hydraulic zero adjustment period.
7. Observe (error condition) LED D8 (Identified on page 3 of the Startup Guide). If the hydraulic zero procedure has not been successful, there will be an error condition. LED D8 will be continuously on or blinking on and off every 1/2 second.
8. If LED D8 is indicating an error condition, check all cable connections for proper location and tightness. Make sure that the meter body flow tube is full of liquid and there is absolutely no flow or leakage. Return to Step 5 and repeat the hydraulic zero adjustment procedure. At the completion of a successful hydraulic zero adjustment, LED D8 will be off.
9. Observe LED indicator D7 (Identified on page 3 of the Startup Guide), which is the indicator for the output IMP3, forward-reverse flow. After successful hydraulic zero adjustment, LED D7 will flash on and off at a random frequency under no-flow conditions and LED D8 will be off.
10. Slide the CAL/MEAS switch to the right to the MEAS position. The flowmeter is ready for normal operation.
11. If, after repeating the hydraulic zero adjustment procedure, LED D8 is still blinking, there may be a malfunction.

The most common cause for failure of hydraulic zero adjustment at initial installation is improper or loose connections. Use a needle-nose pliers to gently tug in each individual wire connection at the meter body as well as the converter terminals to make sure that all connections are correct and fully engaged in the terminal.

Consult factory for help with troubleshooting the issue.
