



# READ THIS FIRST

## Installation and Startup Guide Model IZMAG Integral Electromagnetic Flowmeter

Version 1.6 Document 1175



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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 IZMAG Flowmeter is a precision instrument that is integrated directly in to a process line, and provides real-time information about the process. The principle of operation is based on the measurement of a voltage which is the result of a conductive fluid passing through an electromagnetic field. The resulting information that the IZMAG generates can be used to provide an instantaneous indication of the flow 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 IZMAG can accurately provide outputs for control or indication of the flow process.

### SPECIFICATIONS

#### Performance

Accuracy:  $\pm .20\%$  \* of rate

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

\*  $\pm 1$  mm/sec

#### Operating / Environmental

Temperature Limits: 32-212°F (0-100°C) Process  
32-265°F (0-165°C)  
for 30 min. CIP

Ambient Temperature DC -12 – 130°F(-25-55°C)  
AC -12 – 120°F(-25-45°C)

Pressure Rating: 1.4-145 psi abs.  
.1 – 11 bar abs.

Product Requirements: 5  $\mu$ S min. conductivity

Approvals: ETL, CE(excluding ethernet), 3-A

#### Materials / Construction

Product Contact Surfaces: PFA 316L SS, EPDM  
Housing: 304 SS  
Enclosure Rating: IP 67  
Process Connection Type: Tri-clamp®, Cherry I-line

#### Electrical / Power / Signal

Power Requirement: 9-32 VDC 7W/V.A.  
100-240 VAC 50-60hz  
-15% / + 10% 7W/V.A.

Signal Output:  
(2) digital pulse output  
24VDC @20 mA  
(1) digital status output  
24VDC @20 mA  
(1) 4-20mA passive/active  
Optional 2nd 4-20mA w/Hart (passive)

Control Input:  
Connections:  
conduit adapters  
Display: Graphic LCD  
46 X23mm illuminated  
Hart, CS3 BUS  
Optional - HART & Ethernet

(1) 9-32 VDC R<3.2kohms  
(3) M16 ports with cord grips and 1/2"

Communications:

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## UNPACKING

### Product Check:

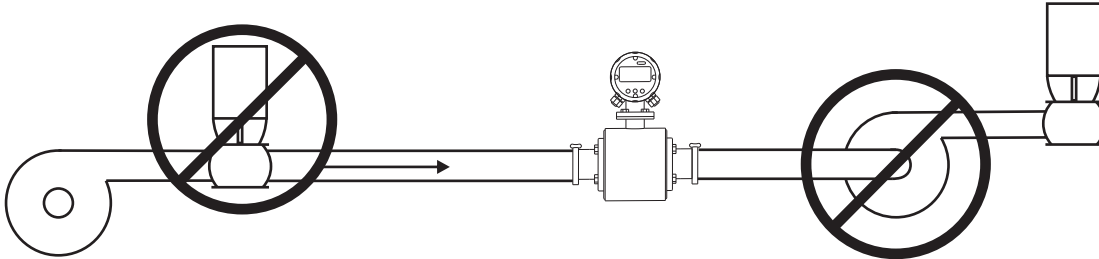
Upon receipt, carefully inspect the product for damage to connectors and sensor face. Damage claims should be made directly with carrier.

### Major items are:

- IZMAG configuration record sheet
- meter body
- cord grips
- manual

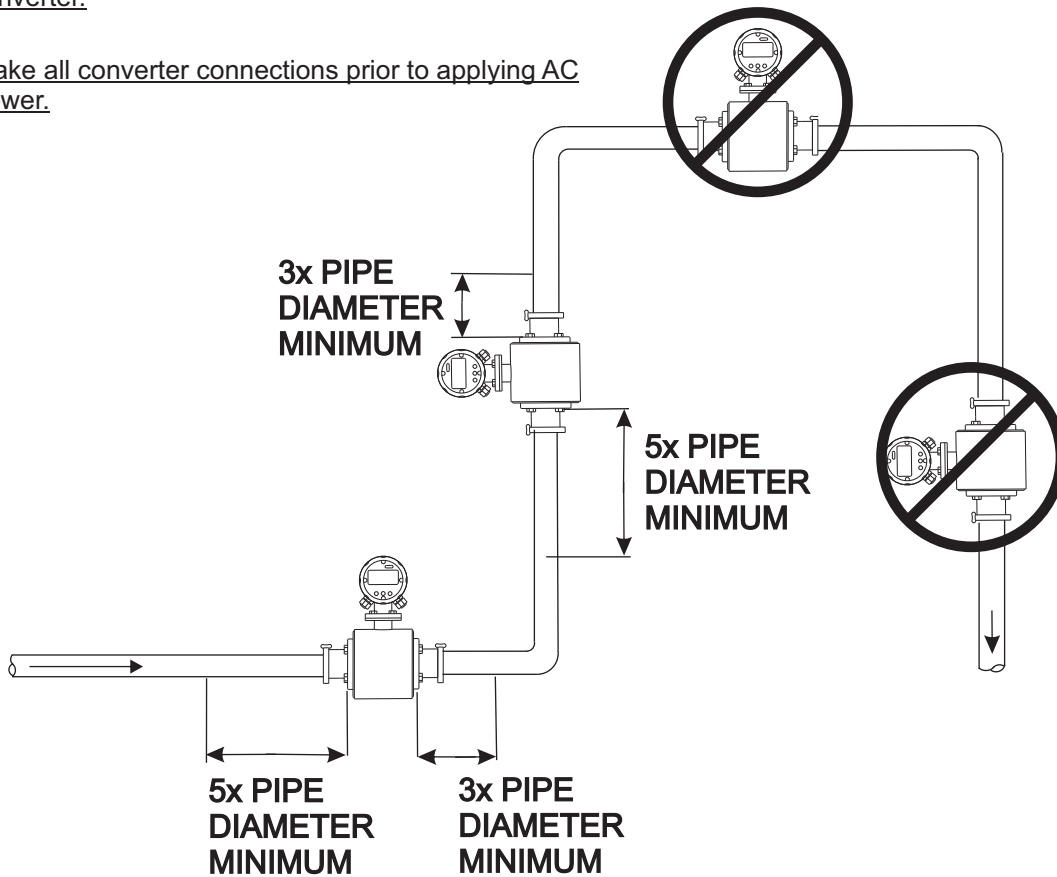
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## IZMAG INSTALLATION



**Warning:** Before welding on a pipeline with a flowmeter installed, unplug the flowtube cable from the meter converter.

Make all converter connections prior to applying AC power.



- Install meter body in-line with arrow decal matching direction of flow.
  - Install in process line with orientation to ensure flow tube remains full.
  - Avoid installing the meter body where vacuum conditions exist due to potential resultant inaccuracies.
  - 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.
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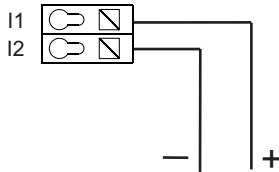
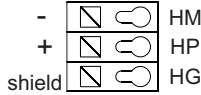
# INTERNAL TERMINATIONS

## Optional Passive Analog Output 4-20mA

Optional 2nd passive 4-20mA output with Hart Communication

Max Load 500 ohm for all elements on Control Loop

Optional RJ45 connector with Ethernet IP communication



## Active/Passive Analog (default active) Output 4-20mA

Max Load 500 ohm for all elements on Control Loop

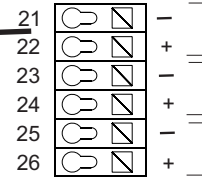
## Count Inhibit Input

Digital Input  
Externally powered  
32VDC R<3.2 kohm  
1000 Hz max

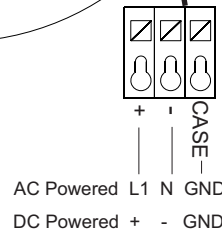


## Pulse Outputs

Digital OUT  
Pulse Output 2  
Pulse Output 1



Output ratings  
Passive opto coupler  
32 VDC/20 mA  
(pulse sequence  
1000 Hz max)



## Input Power

check flowmeter for voltage requirements

NOTE: This equipment must be connected to a wiring system in accordance with ANSI/NFPA 70, NEC with CSA, C22.1, CEC, Part 1

### DC powered

9-32 VDC 7W  
Electrical fuse @ T1.5A

### AC powered

100-240 VAC 50/60HZ  
Electrical fuse @ T500mA

## DISPLAY ORIENTATION

Included with each IZMAG is a 3mm hex key wrench meant to simplify the rotation of the flow meter's display. **Turn off power to the meter before attempting.** To change the orientation of the display for vertical piping installations, remove the two silver socket head screws that are located on either side of the display, rotate 90 degrees and replace the screws in the holes above and below the display. Tighten with modest torque.

# CALIBRATION

## Hydraulic Zero Adjustment

With the initial start-up of the flow meter it is recommended to carry out a zero adjustment ("ZERO adjust") for the flow meter to be optimized in its new environment. However for most applications a zero adjustment is not required.

**ATTENTION!** It is important to confirm the following conditions before performing a zero procedure:  
-The device has to reach its working temperature, i.e. it should have been switched on at least 5 minutes.  
-The transmitter has to be completely filled with the typical liquid free of air.  
-No flow is allowed to occur during the entire "ZERO adjust" measurement.

To begin we start at the "total display" and using the **AAAAAA** key we will activate it 6 times to reach the "Special Functions" display. Then use the **>>>>** Key once to move to the "zero adjust" screen.



The "ZERO adjust" measurement is activated if the **ADJ** key is depressed for a period of 1.5 seconds. To perform the "ZERO adjust" it will be necessary to enter Enable code "222". To start enter a "2" using the **AAAAAA** key, then move the cursor to the left using **<<<<** key and then enter the next "2" followed by moving the cursor one last time and entering the final "2". Press the enter button **↵** to initiate "ZERO adjust".

The top line of the display shows the current ZERO value. The course of the bargraph shows the progress of the measurement. The measurement is finished when the bargraph is completely filled. The new ZERO value is displayed below the bargraph and then installed.

## Output Simulation

To use the simulation function of the IZMAG it will be necessary to enter Enable code "333". After selecting the type of simulation the screen will prompt entry of the Enable code.

### Analog Output Simulation

Beginning at the total screen, activate the **AAAAAA** key seven times so that the "Service Level" screen is displayed. Next activate the **>>>>** key 3 times to display the simulation current output screen.



Through the use of the **++** key the output can be set to three different settings. First 20mA will be output, activating the **++** key again will set 12mA and one more activation will output 4mA. Leaving this screen will terminate the output simulation.

### Pulse Output Simulation

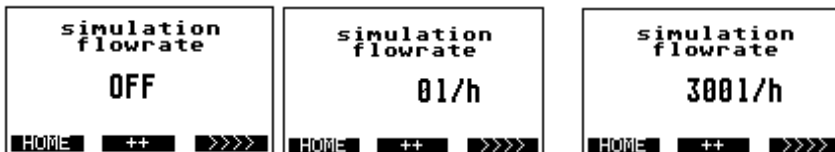
Following the above instructions to the current output screen, the pulse output simulation is displayed by activating the **>>>>** key once.



Activating the **++** key will begin the simulation. In the case of the pulse output a progress bar will display the duration of the test when complete (1 min.) A fixed amount of pulses will have been output by the meter. As with the current display this will be terminated if the screen is changed.

### Simulation of the flow rate

Following the above instructions to the pulse output output screen, the flow rate simulation is displayed by activating the **>>>>** key once.



This function allows for continuous simulation of both the pulse and primary analog outputs. Using this simulation can be helpful in "dry testing" a system prior to actual use. To begin the activate the **++** key to start, the flow will read 0 gal/min. With each activation of the **++** key the flow rate will increase by 10% of Qmax. The function will be terminated by keying one additional time past the max rate.

You may be prompted to first input an unlock code.