READ THIS FIRST

STOP

Model IZMAG Remote Electromagnetic Flowmeter

Version 1.0   Document 1199

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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: ± .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

* ± 1 mm/sec

Operating / Environmental

Temperature Limits:	32-325°F (0-163°C) Process
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:	15 μS/cm minimum for remote electronics
Approvals:	ETL, CE, 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:	(1) 9-32 VDC R<3.2kohms
Connections:	(2) M16,(1) M20 ports with cord grips and 1/2" conduit adapter
Display:	Graphic LCD
	46 X23mm illuminated
Communications:	CS3 BUS
	Optional - HART & Ethernet

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:

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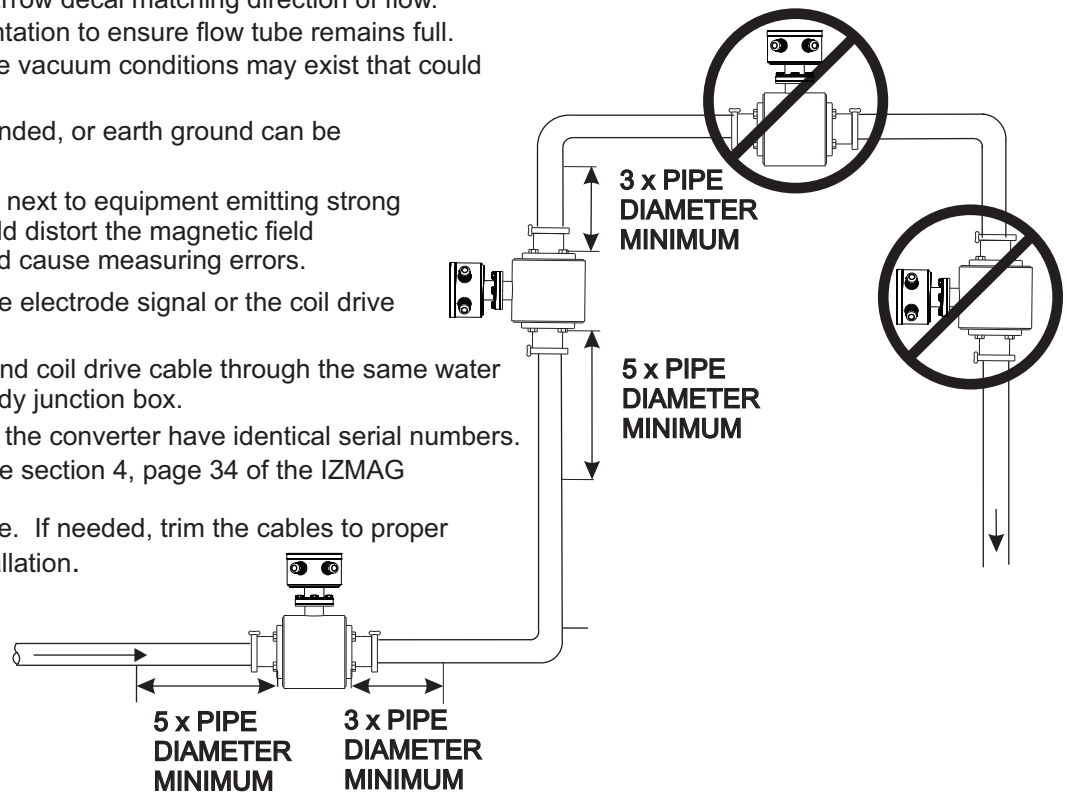- cord grips and conduit adapter sack cables assembled to ordered length
- manual

IZMAG 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 convertor.
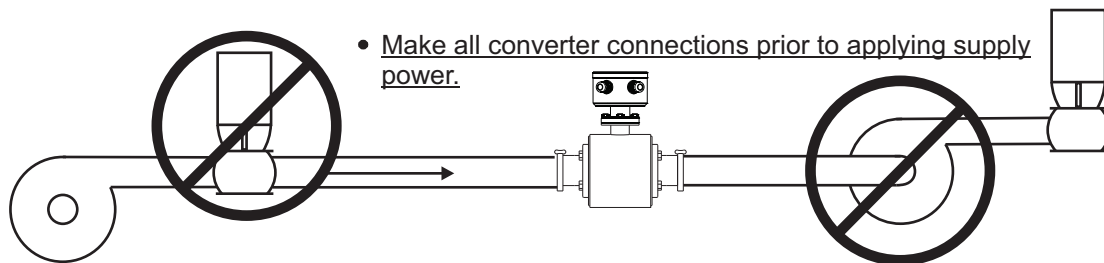
- Make all converter connections prior to applying supply power.

- Install meter body in-line with arrow decal matching direction of flow.
- Install in process line with orientation to ensure flow tube remains full.
- 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 4, page 34 of the IZMAG Instruction Manual.
- Keep cable as short as possible. If needed, trim the cables to proper length at converter end of installation.

3 x PIPE DIAMETER MINIMUM

5 x PIPE DIAMETER MINIMUM

5 x PIPE DIAMETER MINIMUM

3 x PIPE DIAMETER MINIMUM

CONVERTER INSTALLATION

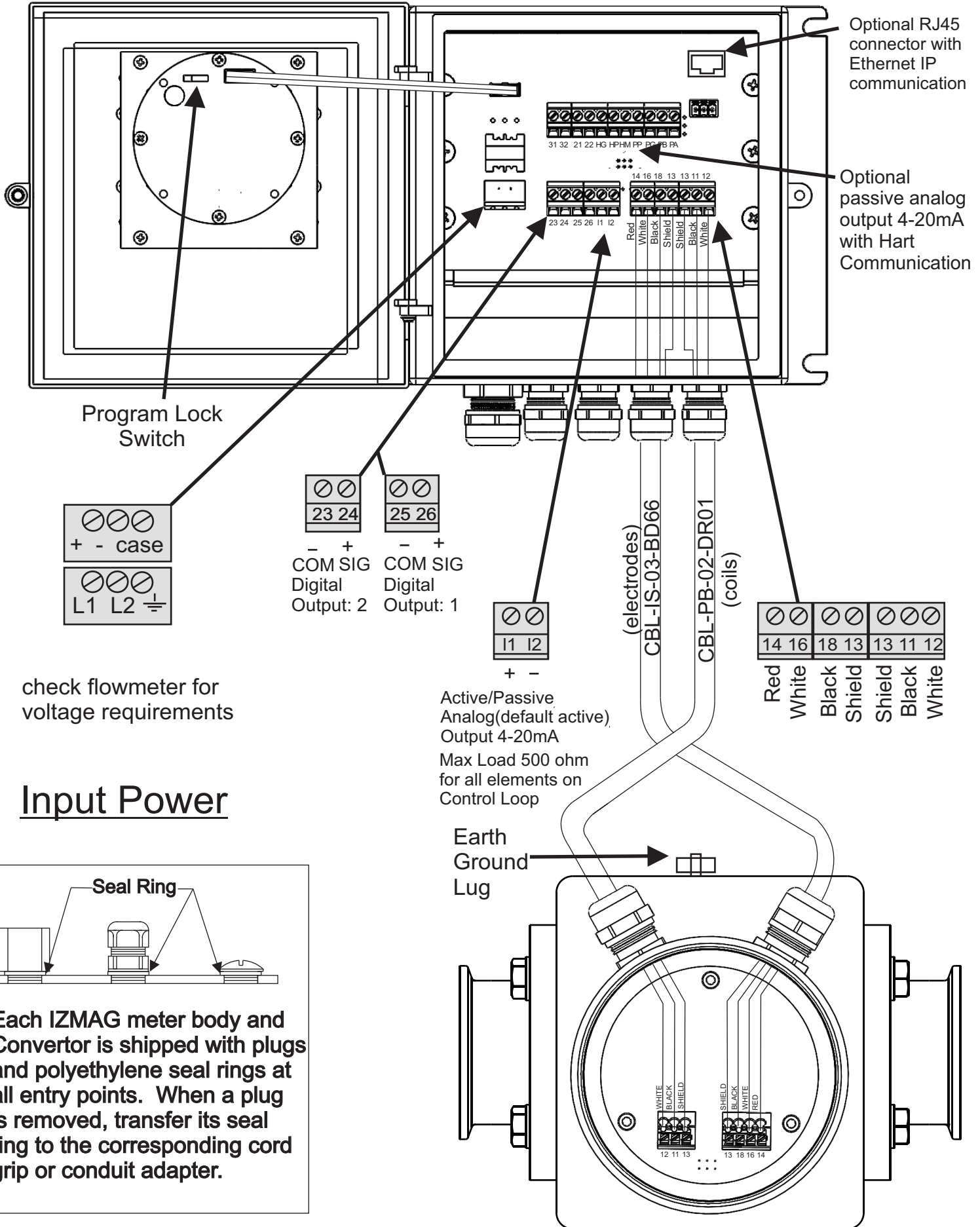To protect the IZMAG converter from damage select a location that meets the following requirements.

- 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

Optional RJ45 connector with Ethernet IP communication

Optional passive analog output 4-20mA with Hart Communication

31 32 21 22 HG HP HM PP PC PB PA

14 16 18 13 13 11 12

23 24 25 26 I1 I2

Red White Black Shield Shield Black White

Program Lock Switch

+ - case

L1 L2

check flowmeter for voltage requirements

23 24
− +
COM SIG
Digital
Output: 2

25 26
− +
COM SIG
Digital
Output: 1

I1 I2
+ −

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

Max Load 500 ohm for all elements on Control Loop

(electrodes) CBL-IS-03-BD66

CBL-PB-02-DR01 (coils)

14 16 18 13 13 11 12

Red White Black Shield Shield Black White

Earth Ground Lug

Input Power

Seal Ring

Each IZMAG meter body and Convertor is shipped with plugs and polyethylene seal rings at all entry points. When a plug is removed, transfer its seal ring to the corresponding cord grip or conduit adapter.

WHITE BLACK SHIELD
12 11 13

SHIELD BLACK WHITE RED
13 18 16 14

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 ⋀⋀⋀⋀⋀⋀ 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.

ZERO adjust	Enable code parameter	ZERO adjust	ZERO adjust
value: 0.00	0	value: 0.00	value: 0.81
			new value: 0.77
HOME ADJ ▶▶▶▶	<< ++ ⏎	HOME ADJ ▶▶▶▶	HOME ADJ ▶▶▶▶

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 ⋀⋀⋀⋀⋀⋀ 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 similation 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 ⋀⋀⋀⋀⋀⋀ key seven times so that the "Service Level" screen is displayed. Next activate the ▶▶▶▶ key 3 times to display the simulation current output screen.

simulation currentoutput	simulation currentoutput	simulation currentoutput
ON - 20mA	ON - 12mA	ON - 4mA
HOME ++ ▶▶▶▶	HOME ++ ▶▶▶▶	HOME ++ ▶▶▶▶

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.

simulation pulse output outputmode 1	simulation pulse output outputmode 1
IMP1 10pulses IMP2 10pulses	IMP1 10pulses IMP2 10pulses
HOME ++ ▶▶▶▶	HOME ++ ▶▶▶▶

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.

simulation flowrate	simulation flowrate	simulation flowrate
OFF	0l/h	300l/h
HOME ++ ▶▶▶▶	HOME ++ ▶▶▶▶	HOME ++ ▶▶▶▶

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.