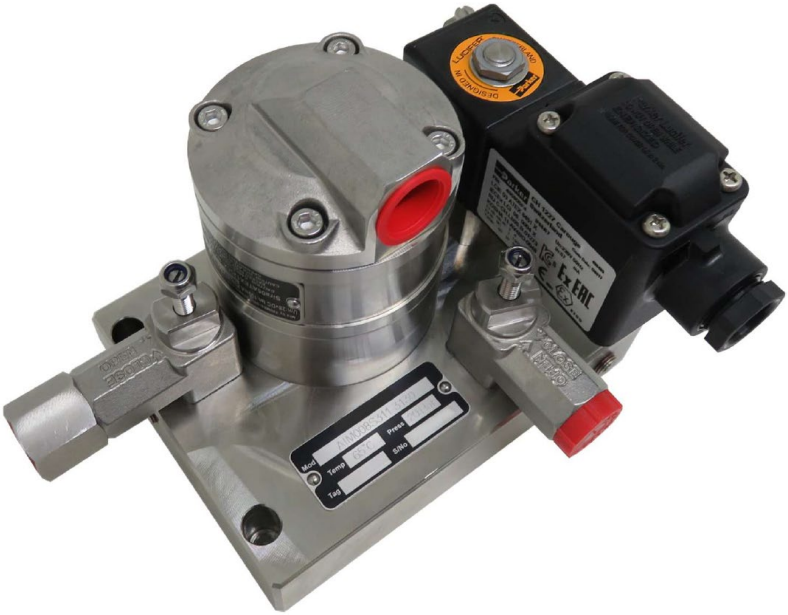
FLOMEC™ Additive Injection Manifold (AIM)

Operation Manual



General Information

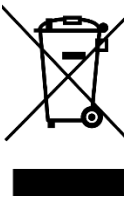
This manual provides the necessary information for installation of your Additive Injection Manifold. Your Additive Injection Manifold should only be installed by persons familiar with local regulations, particularly those for workplace Health and Safety, or Hazardous Area regulations where relevant.

For best results, please make yourself familiar with the contents of all relevant product manuals prior to installation and commissioning. If further assistance is required, please consult the distributor from whom you purchased your product.

CAUTION

This product and any associated electronics are precision instruments, to avoid unnecessary damage please treat them with care.

DISPOSAL WITHIN THE EUROPEAN UNION - WEEE



- The WEEE Directive requires that this product be recycled when disposed of within the European Union
- The crossed out wheelie bin symbol shown in this manual signifies that this product should not be disposed of in general waste or landfill.
- Please contact the local dealer or national distributor from whom this product was purchased for information on recycling electronic equipment within your region.

Table of Contents

1. Introduction

The Additive Injection Manifold is a compact all stainless-steel manifold assembly with isolating, flow regulating & check valves, a fine 200 mesh (75 micron) strainer, solenoid valve and a precision oval gear flow meter that can measure the flow of a broad range of additives. All assemblies shown are modular to the manifold and may be quickly changed in-situ. The inlet and outlet ports may also be rotated to suit installation requirements.

The AIM block will work with any controller or TAS system, serving as a composite slave assembly for the accurate blending of fuel additives to fuels at loading facilities, stationary and mobile transfer units within the petroleum industry worldwide.

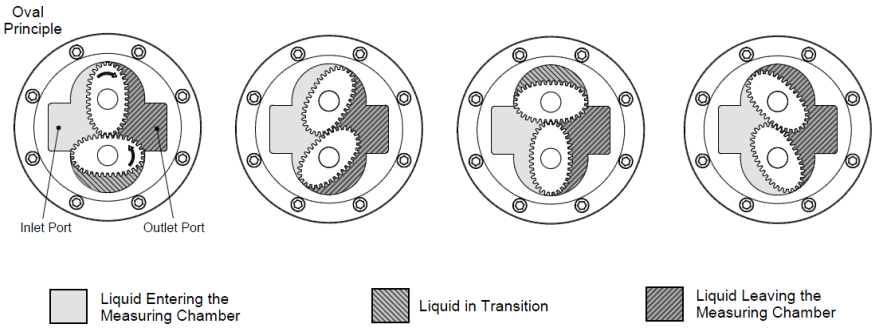
Central to the AIM block is a precision oval gear positive displacement flowmeter having a solid-state style NPN Hall Effect pulse output, with an Exd explosion proof terminal housing.

The second most crucial element is the solenoid valve, having a fast direct acting valve with an FFKM (Kalrez) seat, which allows for high velocity flows through a 3mm or 5mm orifice providing precise proportion control even at high injection pressures.

The block incorporates two slotted stem isolation valves to enable the strainer, solenoid valve and meter to be isolated and serviced as required. The valves also serve as flow regulation valves when needed; typically the upstream (inlet) valve would be opened fully then closed ½ a turn. The downstream (outlet) valve would be used as a flow regulating valve. Once positioned, both valve stems are to be secured using the Nyloc nuts included.

1.1 Flowmeter Operating Principle

Oval Gear flowmeters are positive displacement devices where the passage of liquid causes two oval geared rotors to rotate within a precision measuring chamber. Each rotation of the Oval rotors will transmit 4 identical volumes of liquid from the meter inlet to outlet *(as shown in the diagram below)*; providing electronic pulses via magnetic sensors to a digital instrument.



1.2 Specifications

1.2.1 AIM (Additive Injection Manifold)

Model Prefix	AIM004	AIM006	AIM008
Nominal Size	1/8" *(4mm)*	1/4" *(6mm)*	3/8" *(8mm)*
Flow range² *(USG/hr)*	0.26 ~ 9.5	0.5 ~ 27	4 ~ 145
Flow range² *(L/hr)*	1.0 ~ 36	2 ~ 100	15 ~ 550
Accuracy *(liquids ≥ 3cP)*	± 1% of reading		
Repeatability *(liquids ≥ 3cP)*	Typically ± 0.25%		
Temperature Range	+5°F ~ +149°F *(-15°C ~ +65°C)*		
Pressure Ratings – PSI *(Bar)*			
Maximum Static Pressure	440 (30)		
Maximum Operating Pressure DC Solenoid Coils AC Solenoid Coils	 100 (7) 295 (20)		
Nominal Output Pulse Resolution – Pulses/USG *(Pulses/Litre)*			
Hall Effect	21200 *(5600)*	*7950 (2100)*	2690 *(710)*
High-Resolution Hall Option	42400 *(11200)*	15900 *(4200)*	-

1.2.2 Electrical Specifications

Flowmeter Pulse Output Board		
Hall Effect Output	Output Type	NPN Open Collector
	Voltage Range	5 ~ 24V (dc)
	Current Draw	20mA Maximum
	Switching Current	10mA Maximum
Solenoid Coil		
Valve Code -11	Voltage	24V (dc)
	Power	9W cold / 8W hot
Valve Code -21	Voltage	110V (ac)
	Power	9W / 8W holding
Valve Code -31	Voltage	230V (ac)
	Power	9W / 8W holding
Voltage Tolerances	+/- 10% of nominal value	

1.2.3 Approval Specifications

Flowmeter	Rating	II 2 G – Ex db IIB T6…T3 Gb
	IECEx	IECEx SIR 07.0014X
	ATEX	SIRA 05 ATEX 1296X
Solenoid Coil	Manufacturer	Parker Lucifer SA
	Rating	II 2 G – Ex db mb IIC T4
	IECEx	IECEx LCI 06.0004X
	ATEX	LCIE 03 ATEX 6451X

2. Installation

All flowmeters are inspected and calibrated prior to shipment, and are sent out in perfect condition. Should damage be present on receipt of the product please inspect the delivery packaging for visible mishandling and contact the parcel service / freight forwarder. Maintain any protective plugs/caps until installation.

> ***CAUTION***
>
> Please note that all flow-meters are calibrated with either ***Castrol ISO4113*** or ***Exxsol D130*** immediately prior to shipment, residual oil may be present; please take the appropriate precautions for health and safety. An MSDS is available from the manufacturer or via an internet search.

2.1 Mechanical Installation

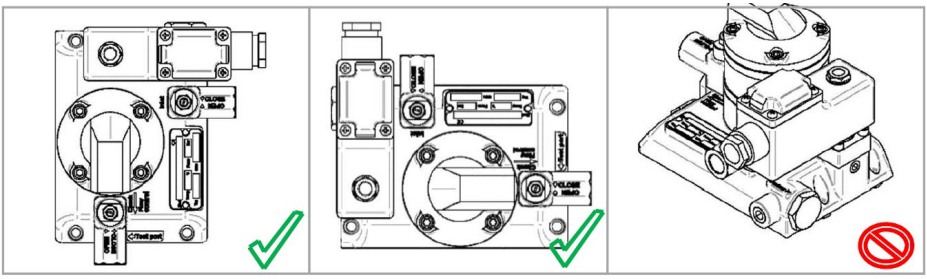
Before installing your Additive Injection Manifold it is recommended that you confirm the product is suitable for your application conditions such as; fluid compatibility with materials of construction, flow rate, pressure, and temperature. Fluid entering the Additive Injection Manifold must remain a liquid at all times; avoid solidification or gelling of the additive. If hydraulic shock or pressure surges of any kind are possible, the system upstream of the manifold must be fitted with a surge suppressor or pressure relief valve to protect it from damage.

When metering high viscosity additives, the maximum allowable flow may need to be reduced to ensure the pressure drop across the flowmeter rotors does not exceed 14.5 PSI (1 Bar). If your liquid viscosity at the lowest possible operating temperature is below 200cP, this does not need to be considered.

(Note: 14.5 PSI [1 Bar] pressure drop limitation excludes pressure drop across solenoid valve orifice. The pressure drop across flowmeter can be measured using ¼" NPT auxiliary ports in the sides of the manifold.)

2.1.1 Installation Orientation

The Additive Injection Manifold MUST be mounted onto a vertical panel; the manifold should not be installed onto a horizontal surface. Failure to mount your Additive Injection Manifold in the correct orientation (as shown in the diagrams below) will cause the weight of the rotors to bear down on the thrust bearings. The short-term effects of incorrect mounting orientation will be a loss in accuracy, with long term effects ranging from reduced lifespan to complete failure of the flow-meter.



2.1.2 Mechanical Support

The Additive Injection Manifold is provided with four mounting holes on the manifold which should be used to mount the product onto a vertical panel as in the below image.

2.2 Electrical Installation

2.2.1 Wiring

All wiring of electrical outputs should use high quality instrument cable; twisted pair low capacitance shielded instrument cable *(20AWG [0.5mm^2] minimum)* is recommended. The cable drain or screen should be terminated on a DC common or a specifically assigned shield terminal at the readout instrument end only; in order to protect the signal from mutual inductive interference. ***The cable shield at the meter end of the cable must be isolated with tape or similar, do not connect the cable shield to ground at the meter.***

The cable should not be run in a common conduit, or parallel with, power cables or high inductive load carrying cables; as interference will affect the transmitted pulse signal. Run all instrument cables in their own separate conduit. Where instrument cables must cross high power cables be sure that the cables intersect at 90 degrees in order to limit induced interference.

Do not combine any inductive loads on the same voltage supply as your flowmeter wiring, as these components are commonly sources of high frequency interference that may affect the quality of the output signals. Inductive loads on a common voltage source also have the potential for voltage spikes well in excess of the 24V (dc) limit of the flowmeter electronics.

The maximum wire cross section that can be connected to the terminals of the flow meter is 16AWG (1.5mm^2).

2.2.2 Hall Effect Sensor

The Hall Effect is a solid state 3 wire device which provides an open collector, NPN signal. The output of the Hall Effect must be fitted with a pull-up resistor between the signal output (⎍) and the voltage supply. The Hall Effect output provides a square wave pulse signal, which alternates between ground potential and the DC voltage available at the pull-up resistor.

The NPN Hall Effect output is a reliable output type, producing a consistent output irrespective of supply voltage variations, temperature variations, or mechanical shock. The service life of the Hall Effect output is theoretically infinite, so long as it is protected from high energy voltage spikes. Hall Effect outputs are protected against reverse polarity, and against low energy voltage spikes; however, they are not protected against constant over-voltage above the maximum limit of 24V (dc) (±5%).

Many secondary flow instruments are fitted with an integral pull-up resistor, but if connecting the Hall Effect output to an electronic device that does not contain an integral pull-up resistor, one **MUST** be fitted by the installer. The pull-up resistor is connected between the signal terminal and the +VDC terminal; the recommended pull-up resistor value is 10kΩ, 2.4kΩ is the minimum value in a 24V (dc) system.

In low voltage systems using low pull-up resistor values, cases may occur where the voltage level at the terminal will not be low enough to trigger the low-level logic on receiving instruments. The equation below approximates the minimum pull-up resistor value required, based on the pull-up voltage level, and the low logic voltage threshold of the instrument.

$$R_{pull-up} = \frac{112 * V_{pull-up}}{V_{low} - 0.05} - 102$$

$R_{pull-up}$ = Minimum value of pull-up resistor

$V_{pull-up}$ = Voltage that signal is being pulled up to

V_{low} = Low logic voltage threshold

Note: The hall effect sensor circuitry incorporates 2 x 51 ohm resistors in series with the signal output.

2.3 Making Electrical Connections

To gain access to the electrical connections on the flowmeter, you must first remove the terminal cover by removing the four cover screws with a ***4mm Hex Key (Allen Key).*** When removing the terminal cover, take care not to damage or lose the O-Ring.

All wiring requires a 0.1" *(2.5mm)* wide Flat Blade Screw Driver *(or smaller)*.

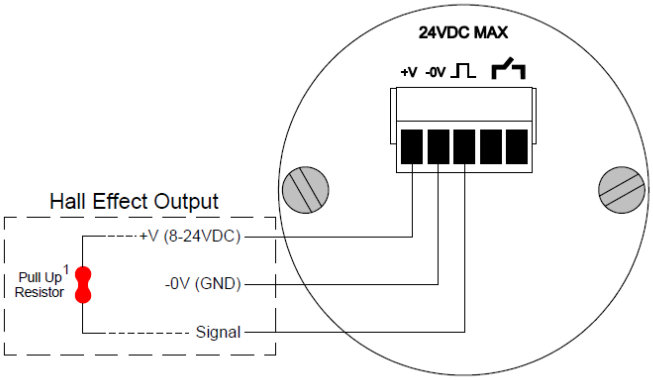
When fitting a terminal cover for a Flameproof (EXd) flowmeter the terminal cover screws must be tightened to a torque of 2.95ft-lb (4Nm). See section 2.7.3 for more details.

When making electrical connections for the solenoid valve the installer MUST refer to the instructions provided by the solenoid coil manufacturer Parker Lucifer SA, which are provided with each Additive Injection Manifold unit.

It is imperative to disconnect the voltage supply before connecting or disconnecting any wiring.

2.4 Wiring Diagrams

2.4.1 Hall Sensor Output (NPN)



Notes for Connection of Hall Sensor Output

1. *Pull up resistor required for operation of Hall Effect output; 10 kΩ is recommended. See section 2.2.2 for further information.*

2.4.2 Solenoid Coil

Wiring connections for the solenoid coil must only be made after reading the installation manual provided by the coil manufacturer Parker Lucifer SA, which are provided in hardcopy with the Additive Injection Manifold.

Please refer to the Parker Lucifer manual for the solenoid coil wiring diagram

2.5 Meter Calibration Factor (K-Factor, Scale Factor)

Each flowmeter is individually calibrated and supplied with a calibration certificate showing the number of pulses per unit volume *(e.g. pulses/Litre)*.

2.6 Installations in Hazardous Areas

Installations in Hazardous Areas are applications where the utmost care is necessary in correctly selecting your flowmeter. If your flowmeter is to be used in a hazardous area it is important that it has been correctly selected for the specific explosive atmosphere in which it is to be used, and that installation be carried out by a ***competent*** person.

The Additive Injection Manifold is Flameproof (EXd) and is suitable for installation in various different hazardous areas, depending on the specific gas/vapour which is present. ***Before installation ensure this product is suitable for the specific explosive gas or vapour present and the zone rating, gas group, and temperature classification of your installation***

For any installations measuring non-conductive liquids there may be a risk of electrostatic build-up in the liquid. It is recommended that the guidance in IEC TS 60079-32-1 is followed.

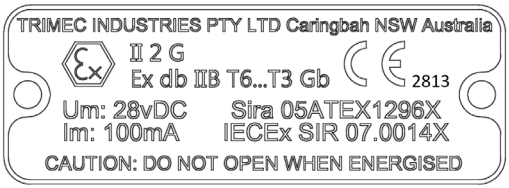
2.6.1 ATEX/IECEx Flameproof Flowmeters (Ex db)

ATEX/IECEx flameproof (Ex db) Oval Gear flowmeters are designed and certified for use in either Zone 1 or Zone 2 hazardous areas.

Flameproof flowmeters must be installed in accordance with hazardous area standards, which require the use of certified cable glands, sealed conduit connections, and armoured cable according to the international standards IEC/EN 60079:1 and IEC/EN 60079:14. The extent of special wiring installation is dependent on the zone and gas group.

ATEX/IECEx flameproof Additive Injection Manifolds are available with the following equipment ratings:

Group IIB – meters suitable for hazardous gas/vapour atmospheres in group IIB.

II 2 G EX d IIB T6…T3 Gb	

2.6.2 Conforming Standards

Flameproof flowmeters carrying ATEX/IECEx labels are certified in accordance with the following standards. Prior to installation or use, review the approval markings on the product and in this manual, as well as the conforming standards below, to confirm it is appropriate for your country/region and site classification.

ATEX Directive
ATEX directive 2014/34/EU
EN 60079-0:2012 + A11 : 2013
EN 60079-1:2014

IECEx Scheme
IEC 60079-0:2011 Edition 6.0
IEC 60079-1:2014-06 Edition 7.0

2.6.3 Temperature Limits for Flameproof Flowmeters

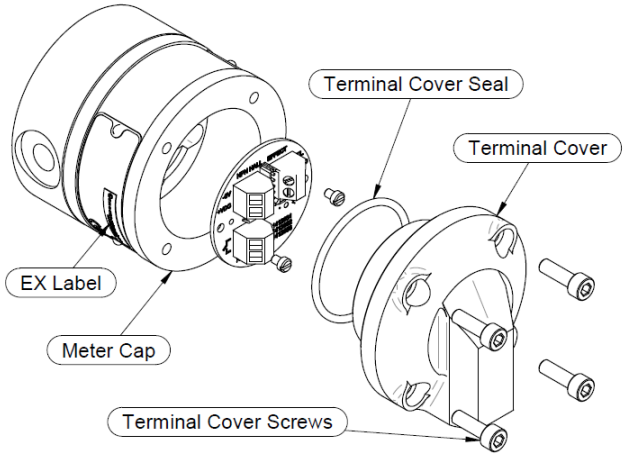
When operating a Flameproof meter, the process (liquid) temperature must be kept below the maximum limit which is allowed for the temperature class of the installation. This is a critical requirement for explosion safety. For ATEX/IECEx rated equipment refer to the table below to determine the temperature limits for a specific temperature class ***(e.g. T6 installations must be kept below 158°F [70°C])***

Process (Liquid) and Ambient Temperature Limits	
Marking	**Allowable Temperature Range**
EX d Mb	+14°F ≤ T ≤ +302°F (-10°C ≤ T ≤ +150°C)
EX d IIB T6 Gb	-40°F ≤ T ≤ +158°F (-40°C ≤ T ≤ +70°C)
EX d IIB T5 Gb	-40°F ≤ T ≤ +185°F (-40°C ≤ T ≤ +85°C)
EX d IIB T4 Gb	-40°F ≤ T ≤ +248°F (-40°C ≤ T ≤ +120°C)
EX d IIB T3 Gb	+14°F ≤ T ≤ +302°F (-10°C ≤ T ≤ +150°C)

2.6.4 Special Conditions of Use

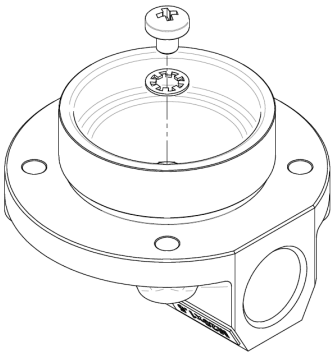
The following conditions must be adhered to for use, service or maintenance of a Flameproof (EXd) flowmeter.

- ***Flamepaths are not intended to be repaired, contact manufacturer***.
- The maximum allowable diametric clearance of the cylindrical joint between the terminal cover and the meter cap must not exceed 0.0059 inches *(0.15mm)*.
- The property class of the hexagon socket head cap screws retaining the terminal cover must be A2-70 or higher; e.g. A4-80.
- Terminal cover screws must be torqued to a value of *2.95ft-lb (4Nm).*



2.6.5 Earthing of Flameproof Flowmeters

A facility for the connection of an earthing conductor is provided inside the terminal cover of all flameproof (EXd) flowmeters, as per below diagrams. The earthing connection is fitted with a 5mm Philips head screw with a locking washer and allows for the fitment of a 5mm ring terminal.



The use of the internal earth connection as the only earthing connection may be acceptable with wiring systems using steel wire armoured cable or metallic conduit. For all other installations an external earthing connection must be used which may be connected to the mounting holes on the manifold or using metallic cable glands with earthing tags.

2.6.6 Solenoid Valve Coils

The solenoid valve coil used in this product is suited for installation in hazardous areas in the IECEx and ATEX schemes. ***Before installation ensure this product is suitable for the specific explosive gas or vapour present and the zone rating, gas group, and temperature classification of your installation.***

All information provided by the manufacturer of the solenoid valve coil – Parker Lucifer SA – in the provided instruction manual should be read and understood. All directions provided by the manufacturer in their instruction manual must be followed when installing or using the product.

2.7 Commissioning

Once the Additive Injection Manifold has been mechanically and electrically installed in accordance with this instruction manual, the manifold is ready for commissioning.

The newly installed manifold must NOT be run until the piping is completely flushed of foreign materials. The most common foreign matter that is present in new or modified piping is; welding slag, grinding dust, sealing tape/compound, and surface rust. If your piping has been designed with a bypass line it will be easy to isolate your meter from the remainder of the system to flush out the majority of the piping. If you have not installed a bypass line around the meter, the best solution is to replace the meter with a spool-piece for the duration of the flushing procedure.

The other critical concern when commissioning a meter is the presence of air slugs; this is also a concern for any systems that have been shut down for long periods of time. ***Do not start up your system for the first time by opening all valves and turning on the pump.***

To safely start a meter for the first time, the best procedure is to eliminate the majority of the air volume in your piping system using the bypass line described earlier. After bleeding the majority of the air through the bypass line, the remainder of the air can be slowly passed through the meter by gently opening the flow control valve downstream of the meter. If a bypass line has not been incorporated into your system, and no alternative exists for bleeding air upstream of the meter, then the entire air volume of your piping will need to be bled very slowly through the valve downstream of the flowmeter.

Following the start-up procedure, and during the period of initial operation, it is recommended that the inlet strainer on your meter be inspected regularly, and cleaned if necessary, as it is possible that not all foreign material will be completely removed from your system during the initial flushing.

2.8 Fault Finding

The flowmeter fitted to the Additive Injection Manifold has two distinct sections: the mechanical wetted section housing the rotors and the electrical section housing the pulse output board. The aim of fault finding is to trace the source of the fault to one of these sections.

Step 1 - ***Check application, installation and set up;*** refer to installation sections for installation and application factors that may affect the meter operation including incorrect wiring. Check meter specifications for incorrect flow rate, temperature, pressure, or materials compatibility.

Step 2 - Check for blockages; The most common cause of fault/unsatisfactory meter operation, particularly for new or altered installations, is due to blockage within the system or meter caused by foreign particles such as weld slag, sealing tape or compound, rust, etc.

Step 3 - Ensure flow is present; No flow or lower than normal minimum flow may be attributed to a blocked strainer, jammed or damaged rotors within the flowmeter, a malfunctioning pump, closed valves or low liquid level in feeder tank.

Step 4 - Ensure oval gears within meter are rotating; Rotation of the oval gears can be heard by holding a screw driver blade to the meter body and pressing the handle hard against the ear lobe. If necessary test the meter with the flow turned off and turned on to familiarize yourself with the audible rotation signature.

Step 5 - Ensure pulses are being generated during flowing condition; a multi-meter is often not fast enough to distinguish the pulse train from the reed switch or Hall Effect sensor. An oscilloscope will allow you to view the output pulse train. When viewing the Hall effect sensor signal ensure a pull up resistor is installed between the pulse output and the supply voltage (refer electrical installation).

Step 6 - Confirm Instrument Operation; if an associated instrument is connected to the flowmeter confirm its operation by simulating a pulse input onto the flow input terminals. In most instances, a contact closure on the flow input terminals is an adequate simulation.

2.9 Troubleshooting Guide

Symptom	Possible Cause	Solution
Meter Readings are High	Output Signal Interference	- confirm shielded cable has been used - ground cable shield at instrument end only - isolate cable shield at flowmeter end - re-route cabling from high electrical energy sources, or power carrying cables such as valves and pumps/motors.
	Entrained air or gas	- Remove source of air or gas entrapment - Install an upstream air-eliminator
	Pulsating Flow from reciprocating style pump	- Increase back pressure on pump - Install a fast response one-way (check) valve, or a surge arrestor between pump and meter - Change pump style to a smooth delivery pump
Meter Readings are Low	Damaged or worn rotors	Inspect, repair, clean, or replace rotors
	Damage or worn measuring chamber	Inspect measuring chamber for damage and consult manufacturer for advice.
	Output signal interference	- Confirm correct wiring with shielded cable - Check all electrical connections for firmness and continuity
No Output from Flowmeter	Rotors jammed	- If meter has been recently field serviced, check that rotors are not installed upside-down or incorrectly meshed - Check for obstruction due to foreign particles - Clean, repair, or replace rotors
	Meter incorrectly reassembled	Consult manufacturer for advice.
	No signal from Pulse Output Board	- Check terminal connections - Ensure DC voltage is available at the terminals of the PCB, and pull-up resistor is fitted if Hall Effect output is used. - Ensure receiving instrument is configured correctly. - Check voltage/current are within maximum ratings
Not Reading on Receiving Instrument	Faulty receiving instrument	- Check hardware and software settings; DIP switches, terminal connections, and programming settings - Repair or replace receiving instrument

3. Maintenance and Repairs

Adhering to the installation instructions is the most important requirement to ensure that your Oval Gear meter provides the maximum level of operational performance. Oval Gear meters are a mechanical device, and so will be subject to some wear and tear over their operational life except under ideal circumstances. The amount of normal wear that the meter will experience will be dependent on the operational conditions such as; flow rate, temperature, cleanliness of the liquid, lubricity of the liquid, and the amount of continuous duty required of the meter.

To maximise the operational availability of your meter, and reduce system downtime, a periodic maintenance and inspection regime should be used. Frequency of maintenance depends on the operational conditions of the meter and the criticality of the system; it is the user's responsibility to determine inspection frequency however the manufacturer can provide guidance.

For any installations that require in-situ cleaning (CIP); it is important that the cleaning or flushing procedures do not produce operating conditions that are outside of the acceptable flow rate, pressure, or temperature ratings of the meter. Chemical compatibility of cleaning solutions should be checked against the materials of construction of the meter.

Before undertaking meter maintenance ensure the following:

Associated alarm(s) or control output(s) are isolated so not to affect the process

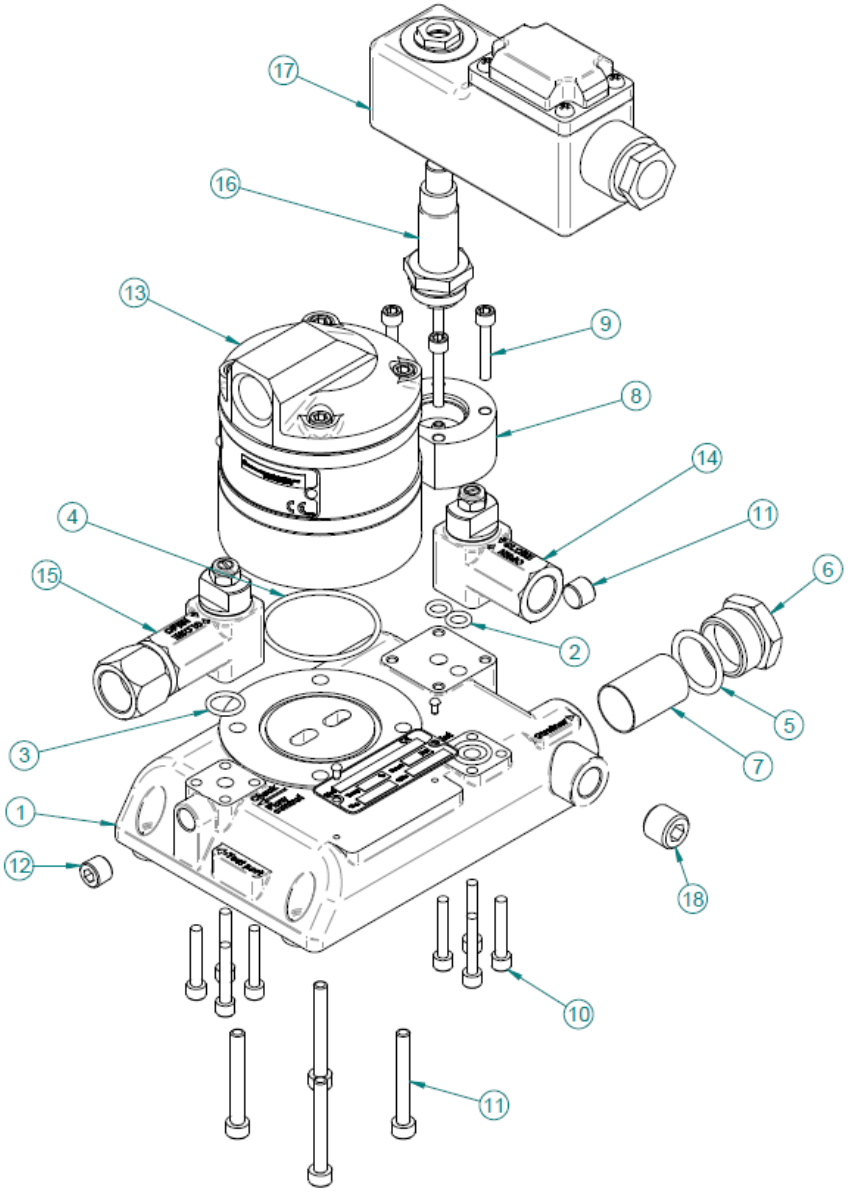
Voltage supply is isolated from the meter

Liquid supply to the meter is closed off

The meter is depressurised and liquid drained from the meter / pipeline

3.1 Parts Identification

For identification of the parts within your Additive Injection Manifold refer to the following images and tables.

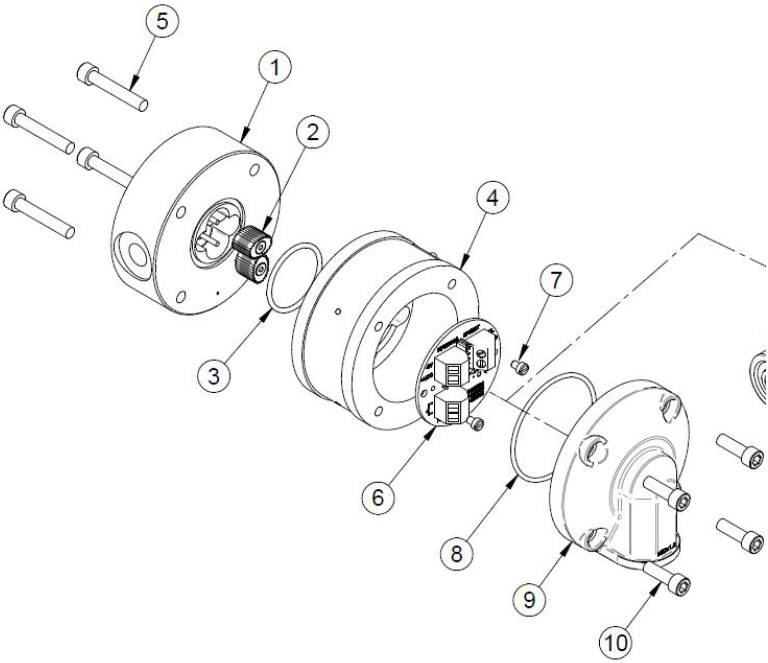


Manifold Parts Identification Table

Item No.	Description
1	Manifold
2	Solenoid Valve O-Ring
3	Inlet/Outlet Valve O-Ring
4	Meter Manifold O-Ring
5	Strainer Housing O-Ring
6	Strainer Cap
7	Strainer Element
8	Solenoid Valve Base
9	Solenoid Valve Base Screws
10	Inlet/Outlet Valve Screws
11	Meter Body Screws
12	1/8” BSP Plug
13	Flowmeter Assembly
14	Inlet Valve Assembly
15	Outlet Valve Assembly
16	Solenoid Valve Operator
17	Solenoid Coil
18	1/4” BSP Plug

For replacement parts please contact the distributor from whom you purchased your product or contact the manufacturer. Be prepared to advise the distributor or manufacturer the model number and serial number of your product.

See the back page of this manual for contact details for the manufacturer.



Flowmeter Parts Identification Table

Item No.	Description
1	Meter Body Assembly
2	Rotor Assembly
3	Meter Body O-Ring
4	Meter Cap
5	Meter Body Screw
6	Pulse Output Board
7	Pulse Output Board Screw
8	Terminal Cover O-Ring
9	Terminal Cover
10	Terminal Cover Screw

3.2 Flowmeter Disassembly

If required to gain access to the meter terminals and pulse output board, undo the 4 cap screws (10), remove the terminal cover (9) carefully to avoid putting strain on the terminal connections. The pulse output board (6) can now be accessed and removed if necessary by removing the pulse output board screws (7).

To access the oval gear rotors, undo the meter body screws (5), and carefully separate the meter body and meter cap, avoiding misplacing or damaging the O-ring (3). The rotors (2) can now be removed and inspected.

3.3 Flowmeter Inspection

Inspect O-rings for damage, chemical attack, deformity or any form of deterioration. Remove, inspect and clean the rotors, and check the measuring chamber for damage or scoring, the rotor shafts should NOT be loose or able to be rotated. Rotors should turn freely, and should spin without scraping or catching on any part of the meter body.

3.4 Re-assembly of Flowmeter

When re-installing the rotors the magnets MUST be correctly positioned so that they are facing the sensors located in the meter cap, the magnets are inserted from the underside of the rotor so will not be visible when the rotors are installed. If you are unsure of magnet location it is easiest to test using a small steel object such as a steel ruler or small screw driver.

Both rotors will only engage correctly if fitted precisely at an orientation of 90 degrees to each other. Rotate the rotors slowly by hand to ensure they are correctly fitted, at the same time check the rotor shafts & rotor bearings for wear. If you are able to rotate the engaged rotors through a complete revolution, then you have installed them at the correct 90 degree angle.

Fit the O-ring into the groove and assemble the meter cap onto the meter body; meters are visibly aligned using a small dimple on the top face of the meter body and the underside of the meter cap.

Fit the body cap screws (5) and tighten in a star sequence, then carryout a final tighten in the same sequence to a firm torque. This sequence and procedure ensures the meter bodies are assembled correctly and evenly. Fit the pulse output board and terminal cover.

4. EU Declaration of Conformity

Product Models: AIM Additive Injection Manifold

Manufacturer: Trimec Industries Pty. Ltd.
12/7-11 Parraweena Road
Caringbah, NSW 2229
Australia

This declaration of conformity is issued under the sole responsibility of the manufacturer. Conformity is based on the application of the harmonised standards listed below, and where necessary through certification by a European Union Notified Body.

2014/30/EU EMC Directive
Harmonised standards: EN61326-1:2013

2011/65/EU RoHS Directive
Harmonised standards: EN50581:2012

2014/34/EU ATEX Directive
ATEX certificate: Sira05ATEX1296X
Harmonised standards: EN 60079-0:2012 (+A11:2013), EN 60079-1: 2014
Notified Body for ATEX Type Examination: CSA Group Netherlands B.V. (N.B. No. 2813)
Notified Body for ATEX QAN: CSA Group Netherlands B.V. (N.B. No. 2813)

Signed for and on behalf of the manufacturer:

Matthew Wyres,
Engineering Manager
Trimec Industries Pty. Ltd.

Sydney, Australia
30th March 2020

Please note that this manufacturer's declaration does not cover the solenoid valve component of the Additive Injection Manifold. A separate declaration of conformity for the Parker Lucifer solenoid valve is included in hardcopy with the product. This can be found in the Parker Lucifer instruction manual.

Notes:

Service & Warranty

For Technical Assistance, warranty replacement or repair in North or South America contact your Flomec Distributor or contact

Great Plains Industries, Inc.
5252 East 36th St. North Wichita,
KS, USA 67220-3205

888-996-3837

For Technical Assistance, warranty replacement or repair outside North or South America contact your Flomec Distributor or contact

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