AIM Block (Additive Injection Manifold)

Additive Injection Manifold (AIM) block is a compact all stainless steel manifold assembly complete with isolating, flow regulating & check valves, a fine mesh strainer, solenoid valve & a precision oval gear flowmeter. AIM injects small amounts of modifying additives & performance enhancing agents into fuels & base products, these include lubricants, dyes, colourings, denaturants, detergents, odorizing, anti-freeze, anti-corrosion, anti-static, anti-detonating, anti-icing, anti-foaming and emulsifiers.

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

Features/Benefits

- Compact Stainless steel design with stainless gears
- All valve assemblies & the meter are detachable
- Modular process connections (directional)
- High accuracy & repeatability (±0.5% or better)
- Simple to install, easy to service in situ
- ATEX/IECEx approved Explosionproof Electrics
- Quadrature Pulse Output option

Specifications

Model Prefix	AIM004 (1/8")	AIM006 (1/4")	AIM008 (3/8")
Nominal size (inches)	4mm (1/8")	6mm (1/4")	8mm (3/8")
Process connections	3/8" NPT elbows, 3 X 90° orientation positions		
*Flow range – LPH	0.5 ~ 36	2 ~ 100	15 ~ 550
– GPH	0.13 ~ 9.5	0.5 ~ 27	4 ~ 145
Accuracy @ 3cp	± 0.5%		
Repeatability	typically ± 0.25% of reading		
Temperature range	-20°C ~ +120°C (-4°F ~ +250°F), refer factory for lower temperature		
Maximum Static pressure	30 bar *(440 PSI)*		
Maximum operating pressure	bar (*PSI*)		
DC Solenoid Coils	7 *(100)*		
AC Solenoid Coils	20 *(295)*		
Electrical - for pulse meters (see below for optional outputs)			
Output pulse resolution	pulses / litre (*pulses / US gallon*) - nominal		
Hall effect	2800 *(10600)*	1050 *(3975)*	710 *(2690)*
Quadrature Hall option	2800 *(10600)*	1050 *(3975)*	710 *(2690)*
HR-High Resolution Hall option	11200 *(42400)*	4200 *(15900)*	N/A
Hall effect output (NPN)	3 wire open collector, 5~24Vdc max., 20mA max.		
Optional outputs	4~20mA, quadrature pulse		
Physical			
Protection class	IP66/67 (NEMA4X); optional Exd I / IIB T4/T6,		
Overall dimensions	Refer Below		

* Maximum flow is to be reduced as viscosity increases, see flow de-rating guide. Max. Recommended pressure drop is 100Kpa (15 psi).

Overall Dimensions
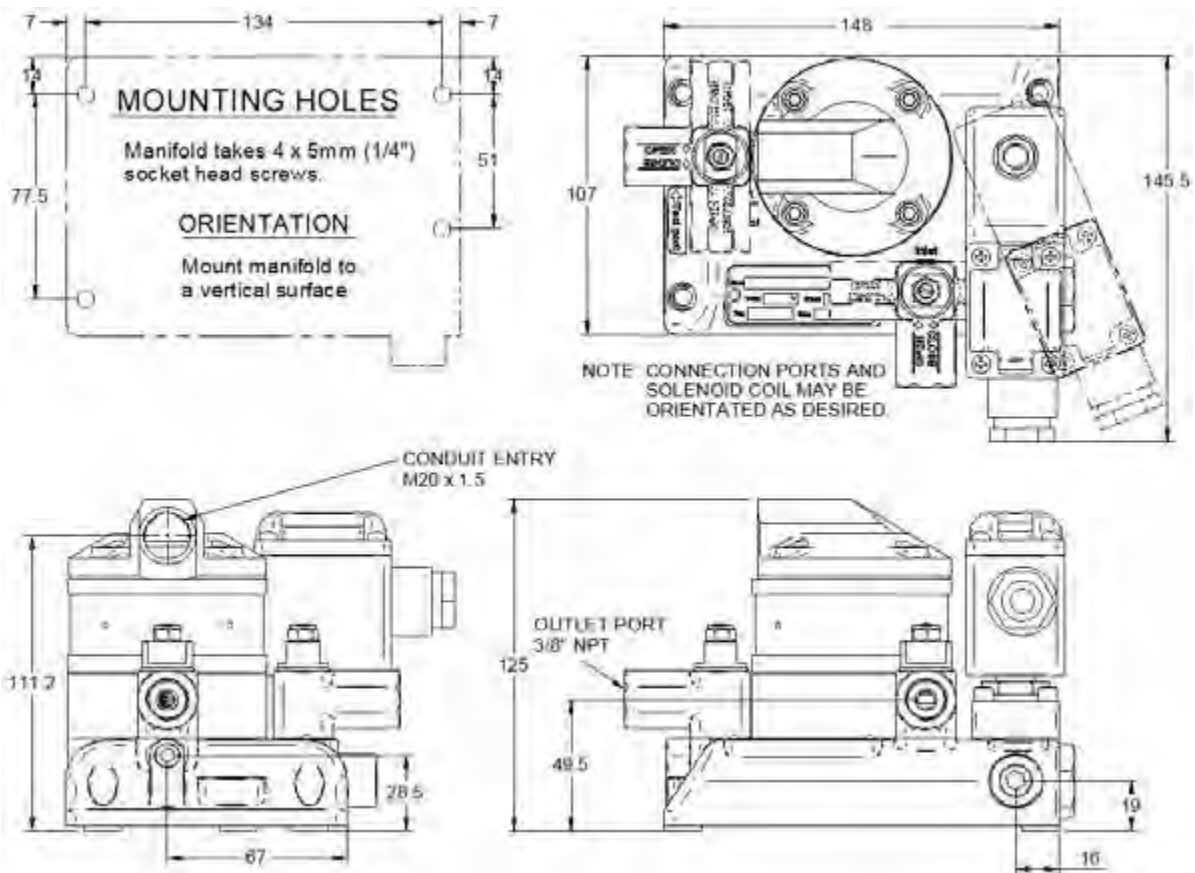
Model Coding

AIM004	AIM block 0.01~0.6 L/min, 2800 PPL (10,600 PPG) & *11,200 PPL optional (HR)*
AIM006	AIM block 0.03~1.66 L/min 1050 PPL (3975 PPG) & *4,200 PPL optional (HR)*
AIM008	AIM block 0.25~9.16 L/min 710 PPL (2690 PPG) *REFER AIM PRESSURE DROP GRAPH FOR ORIFACE SIZE*

Manifold, meter & valve material

S	Stainless Steel (*AIM temp. range -20~+ 65 ˚C for Ex version, -20~+ 100° C non Ex version*)

Seal materials

1	Viton *(standard)*
2	EPR (*Ethylene Propylene Rubber*)
3	# Chem-Kit, comprises Teflon & Perfluoroelastomer *(Kalrez-Kemraz)* O-rings
4	Buna-N *(Nitrile)*

 # Option 3 Chem-Kit comprises both Teflon & Perfluoro O-rings as appropriate

Meter protection approval

0	No approval
1	IEC / ATEX inclusive

Cable entry for meter

1	M20 x 1.5mm female threaded
2	1/2" NPT female threaded

Solenoid valve voltage

-	0	12Vdc x 9W coil (maximum operating pressure 7 bar)
-	1	24Vdc x 9W coil (maximum operating pressure 7 bar)
-	2	110~115Vac/60hz x8W coil (maximum operating pressure 20 bar)
-	3	220~230Vac/50hz x 8W coil (maximum operating pressure 20 bar)

Solenoid valve approval

0	No approval
1	IECEx / ATEX approval coil

Solenoid valve orifice (*refer pressure drop graph below*)

3	3mm Ø (*DC coil = 7 bar, AC coil = 10 bar max. Differential pressure* *)
5	5mm Ø (*DC coil = 3.5 bar, AC coil = 8.5 bar max. Differential pressure* *)

Options

0	No options
QP	Quadrapulse pulse output
HR	High resolution Hall Effect output**

AIM004 = 11200 PPL, AIM006 = 4200 PPL

* Differential pressure is equal to additive pressure minus fuel pressure

** High resolution units are not available with quadrature pulse output option.

Model No. example

AIM006	S	1	1	2	-	3	1	3	0

Manifold Pressure Drop (KPa) vs Flow Rate (LPM)

AIM with 3mm Orifice

AIM with 5mm Orifice