

Countum Group

SATAM

Metering Solutions



Equalis AIM

Additive Injection System

Satam additive injection and control system is composed of Equalis S controller and one or several AIM (additive injection modules).

Equalis S controller is designed to operate as single or multi-point additive injection controller. It is capable of controlling from 1 to 12 additives injection modules (AIM) operating simultaneously or individually in any combination.

Flow computers

Measuring systems

Flow meters

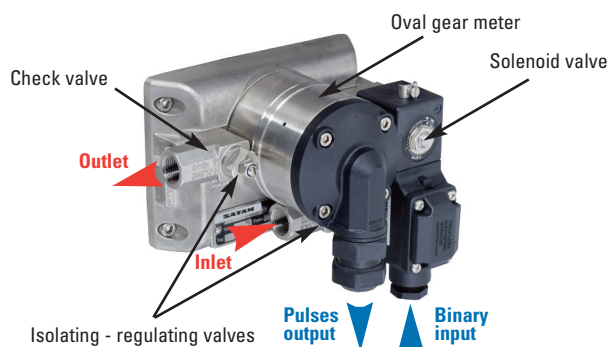
Accessories

Fields of application

- Additives injection during tank-truck loading
- Additives injection during preparation of aviation fuels
- Colouring and marking of heating oils and taxes reduced fuels

Key points

- Comprehensive additives injection system compatible with most existing meters fitted with pulses transmitter.
- Can control the injection of 1 to 12 additives per measuring line
- Automatic calibration of the additives meters
- Display of additive(s) and main product volumes
- Display of additives concentrations (ppm)
- Direct communication with Terminal Automation System
- Can operate as a stand-alone unit



Additive controller Equalis S

Compatible with terminal automation systems, Equalis S can operate in both stand alone or online mode. Multi levels of security by way of user defined PIN numbers for Service Personnel and Management ensure system integrity.

Equipped with a durable "antivandalism" key pad for menu driven configuration, Equalis S can also be PC configured. Its wide graphic display provides easy to view measuring and configuration information for both users and service personnel.

Equalis S is a multifunctional device : it can operate as a standalone additive injection controller or as a loading batch controller with addition and blending functionalities.

AIM module

Central to the AIM block is a high precision oval gear positive displacement meter with pulses output proportional to the injected volume.

The second key element of the AIM is the solenoid valve to control the additive injection volume. A fast direct acting valve with a ruby seat allows for high velocity flows through a small 3mm orifice providing minute proportion control even at high injection pressures and liquid changing temperatures.

AIM is controlled by Equalis S. It accurately injects small amounts of additives to a base product.

Measured additives can be lead replacements, dyes and markers, denaturants, detergents, odorizing, antifreeze, anti-corrosion, anti-detonating, anti-static, anti-icing, anti-foaming, emulsifiers and performance enhancing agents.

Technical data - Additive Injection System

Model		Equalis AIM		
Application		In-line injection of additives in petroleum products		
Functions		Metering of additives quantities Control of additives injection proportionally to additives concentration setpoints Control of additives pumps via Modbus tables Calculation of average additives concentrations (ppm) per batch "Clean arm" function to provide a product without additive in the loading arm at the end of the batch Secured back-up of the batch data (products and additives quantities, concentrations, time and date...)		
Additive injection modules		AIM004	AIM006	AIM008
Max. flowrate (L/h – L/min)		60 - 1.0	100 - 1.66	600 – 10
Min. flowrate (L/h – L/min)		0.6 – 0.01	1.8 – 0.03	15 – 0.25
Materials	Back plate	304 stainless steel		
	Manifold	303 stain less steel		
	Enclosure	UV-resistant impact modified polycarbonate		
	Meter, valves and strainer	316 stainless steel		
	Solenoid valve	Ruby seat to cover all applications		
Internal construction	Manifold	Isolating, flow regulating and check valves, strainer, Solenoid valve, precision oval gear flow meter, Inlet and outlet elbows, inlet and outlet port		
	Manifold connections	3/8" NPT		
	Strainer	Min 75 µm (200 mesh)		
Operating conditions	Pressure	10 bar max with 6 - 24VDC solenoid - 20 bar max with 108 - 220VAC solenoid		
	Ambient temperature	-25°C to + 60°C		
	Humidity	5 to 95% without condensation		
	Protection class	IP66		
Performances	Meter accuracy	+/-0.5% @ 3 mm ² /s (cSt)		
	Meter repeatability	+/-0.25%		
Additive injection controller		Equalis S		
Equipment	User Interface	Display : Graphic screen, 240 x 128 pixels, backlight - Volume resolution : 999999 points Numeric keyboard, pre-programmed pushbuttons, cycle start/stop pushbutton		
	Enclosure	Aluminum base with epoxy coating		
Inputs/Outputs	Main meter inputs	1 or 2 inputs dual-pulse with flow direction - Intrinsic safety or NAMUR*		
	Temperature inputs	1 or 2* inputs (4-wire Pt100)		
	Digital inputs	15 inputs (intrinsic safety) and 2* input (NAMUR) - Up to 12 inputs dedicated to AIM additives metering for additive volumes, grounding system, arm position, overfilling system, vapour recovery, emergency stop		
	Digital outputs	10 (+10*) relays (250V, 10A) - Up to 12 outputs dedicated to additives injection control for additives injection, valves control, alarm		
	Databus	1 port RS485 or Ethernet TCP/IP : communication with supervisory system 1 port RS485 or RS232 : printer Communication protocole : Modbus RTU 1 port USB : Data extraction		
Operating conditions				
Ambient temperature		Standard : -20 °C to +55 °C - Option : -40 °C to +55 °C		
Certification for potentially explosive atmospheres		ATEX and IEC Ex Zone 1 – II 2 (1) 1 G Ex d [ia Ga] ia IIB T4 Gb Ga		
Protection class		IP66		
Power supply		100 to 240 VAC 50 à 60 Hz-		
Dimensions		Height x width x depth (mm) : 278 x 350 x 192 (without cable glands) - Weight : 16 kg		

* : optional

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