

Countum Group

SATAM

Metering Solutions

LPG Metering Systems



Trucks and railcars loading, unloading and transfer

The Satam LPG metering units are designed for trucks and railcars cars loading and unloading applications as well as for product transfer by pipeline. Available with Coriolis mass flow meter, turbine meter and PD meter, Satam LPG metering systems offer flexible design for customized custody transfer applications .

Flow computers

Measuring systems

Flow meters

Accessories

1. Areas of applications

- Tanker trucks and railcars loading station
- Reception units for trucks, railcars and barges
- Pipeline product transfer metering
- Blending unit for LPG preparation

2. Key points

- **Metering**
 - Direct measurement of mass with Coriolis mass flow meter
 - Volume measurement with positive displacement meter or turbine
- **Metrology**

Electronic register for calculation of mass and corrected volume according to international Weight and Measures regulations, secure data archiving and direct communication with supervisory system
- **Easy to use**

Available in stand-alone mode with PD meter, printer and valve without any external electrical or pneumatic power source
- **Modular design**

Wide range of meters and accessories for a fully modular design according to the real customer needs

3. A high reliability measurement system

- **Line pressure control system**

Metering line pressure control in order to avoid degassing during the transaction:

 - Metering line pressure controlled by the flow computer with pressure and temperature measurements, vapour pressure calculation and maintain of a pressure of 1 bar above LPG vapour pressure (VP + 1 bar)
 - Pressure control by pressure regulator valve
- **Safe use**

Measuring system supplied fully assembled and tested in the factory in order to ensure maximum reliability
- **Low maintenance cost**

Simple and robust construction with minimal moving mechanical components
- **Multifunction flow computer**
 - Line pressure control
 - Blending control of butane/propane for LPG preparation
 - Additive injection control for odorizing or injection of improver for road fuels
 - Automated management of on-site calibration operations
 - Compatible with PD meters, turbines and mass flow meters
 - Management of security devices such as dead-man's switch and grounding systems

Technical Data

Application		LPG metering unit		
Measuring system		Metering unit with mass flow meter	Metering unit with turbine	Metering unit with PD meter
Flow register		electronic	electronic	electronic mechanical
Flow rate		1 to 230 t/h	15 to 300 m ³ /h	11 to 165 m ³ /h
		16 to 3833 kg/mn	250 to 5000 L/mn	183 to 2750 L/mn
		4.4 to 1013 USGPM	66 to 1321 USGPM	48 to 727 USGPM
Description		Compact horizontal or vertical metering unit with line pressure control at 1 bar above the vapour pressure (VP+1bar)		
Measured parameters		Mass, actual volume, corrected volume*, density, temperature, pressure	Actual volume, corrected volume, mass, density*, temperature, pressure	Actual volume
Measured medium		LPG, butane, propane		
Equipment				
Gas separator, condenser		Use to define according to the up-stream hydraulic conditions Not necessary if the upstream pipe is in charge		
	Level detection	Liquid-gas interface detection for valve control via flow computer		
	Gas vent	Hand operated valve		
Strainer		Not necessary	Y-strainer or basket filter	
Meter		Mass flow meter	Helical turbine	PD meter
	Model	MFMU	SA	ZC17G
	Materials in contact with the liquid	Stainless steel 316L	Stainless steel 316L, tungsten carbide, light alloy	Stainless steel 316L, Graphite
Temperature measurement		Integrated into MFMU	4-wire Pt100 or 4-20mA transmitter (*)	-
Pressure measurement		4-20mA transmitter 0-40 bar		
Metering valve	Functions	Pneumatic or electro (*) control valve Small and large flow, authorization, flow control, line pressure control (TV+1bar)		
	Materials	Carbon steel ASTM A216		
Flow register device	Functions	Equalis MPC with display and secure data archiving Corrected volume and mass metering Vapour pressure calculation and valve control for VP+1bar Security devices management (dead man switch, over filling protection, grounding system...) Additive injection and blending control		
	Outputs	6 (12*) relay outputs (250V 6A) for control valves, pump, additive injection, alarm... 2 pulse outputs for electronic seals, additive injection		
	Data bus	2RS485 Modbus, RS232, Can Bus 2.0b		
Operating conditions				
Maximum pressure		40 bar	20 bar	
Temperature		Ambient -40 to +60°C Liquid -10 to +80°C Contact us about higher and lower temperatures		
Installation	Ex approval	EEx ib [iq] II AT4		
	Protection class	IP66		
	Power	230 VAC or 24 VCC		

(*optional)

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