



## ULTRASONIC FLARE GAS METER (UFGM)

Reliable in Flare Gas Measurements

<b>Measured values</b>	Gas velocity, gas temperature, gas volume and mass, Mass flow rate, molecular weight, volumetric flow a. c., volumetric flow s. c., sound velocity
<b>Measurement principle</b>	Ultrasonic transit time difference measurement
<b>Hazardous area</b>	1G 2G 3G Class I Division 1 Class I Division 2 Ga Gb Gc
<b>Measuring ranges</b>	Measuring ranges depend on nominal pipe size and gas composition
<b>Gas temperature</b>	Standard: -70 °C ... +0 °C
<b>Operating pressure</b>	-0.5 bar (g) ... 8 bar (g)
<b>Nominal pipe size</b>	6 " ... 72 " Depending on gas composition and device version
<b>Enclosure rating</b>	Sender/Receiver unit (ATEX zone 1): IP65, IP67 Sender/Receiver unit (ATEX zone 2): IP65
<b>USB</b>	✓
<b>Serial</b>	✓
Type of fieldbus integration	RS-232 RS-485
<b>Ethernet</b>	✓
Type of fieldbus integration	Via optional interface module
<b>Modbus</b>	✓
Type of fieldbus integration	ASCII RS-485 (via optional interface module) RTU RS-485 (via optional interface module) TCP (via optional interface module)
<b>HART</b>	✓
Type of fieldbus integration	Via optional interface module
<b>PROFIBUS DP</b>	✓
Type of fieldbus integration	Via optional interface module

## Product description

The product is designed for flare gas flow measurements. The product family is characterized by a unique flow-optimized sensor design. This innovative design minimizes flow-generated noise and signal drift when gas velocities are particularly high. Modern signal processing and high-efficiency transducers enable high time resolution for signals and thus deliver accurate measurements, even at extremely low gas flow rates.

The standard system configuration includes two sender/receiver units or one measuring probe and the MCUP control unit. The MCUP unit is used to input and output signals; to calculate reference values (normalization), molecular weight and mass flow; to record gas volumes; and to provide user-friendly control via the LCD display.

## At a glance

- High-resolution measurement and short response time
- Innovative sensor design for very high gas velocities and gas temperatures up to 100 °C
- Optimal signal transmission even under atmospheric pressure
- Detached installation of the control unit up to 1,000 m away
- Single and multi-path configuration, opt. Probe version
- Zero point test in the field according to factory standard
- Control cycle for automatic self-diagnosis / signal optimization

## Your benefits

- Reliable process control due to exact measurement near the zero point
- High measurement availability even in the case of emergency shutdowns with gas velocities of up to 120 m/s
- A solution for the measurement of flare gas lines and stacks
- Cost savings due to detached installation of the control unit possible in the safe area
- System solution for the control of three different measuring points with a common control unit
- Cost savings due to one-sided installation when using UFGM probe version
- Optimal device performance due to continual function monitoring and extended diagnostic functions in the field

## Fields of application

- Emissions control for accounting of CO<sub>2</sub> emissions
- Detection of flare gas leaks
- Monitoring of gas losses
- Exact mass balance and process optimization

## Flare Gas Meter

Certificate holder	Institute of Gas Smart Measurement
	Address(registered): Institute of Gas Smart Measurement, Iran University of Science and Technology, Farjam St., Tehran, Iran Postal Code: 16846-13114
Manufacturer	Probe&Transducer by Artiman's Process Development Engineering Company (ArProDec)
	SPU by Pejvak Rayan Company

### Ordering information

- **Measurement principle:** Ultrasonic transit time difference measurement
- **Measured values:** gas velocity, gas temperature, gas volume and mass, Mass flow rate, molecular weight, volumetric flow a. c., volumetric flow s. c., sound velocity
- **Nominal pipe size min.:**  $\geq 6$  "
- **Nominal pipe size max.:**  $\leq 72$  "
- **Ex area category:** 1G, 2G, 3G, Ga, Gb, Gc, Class I Division 1, Class I Division 2
- **Communication interface:** USB, Serial, Serial, Ethernet, Modbus, Modbus, Modbus, HART, PROFIBUS DP, Foundation Fieldbus
- **Communication Interface detail:** RS-232, RS-485, ASCII RS-485, RTU RS-485, TCP
- **Process temperature min.:**  $\geq -70$  °C

Process temperature max.	Operating pressure min.	Operating pressure max.	Enclosure rating	Type	Part no.
$\leq 100$ °C	$\geq -0.5$ bar (g)	$\leq 8$ bar (g)	IP65, IP67, IP65,	UFGM	On request