

UPG-MS: Modular Membrane Solutions

Biogas Upgrading



We design and manufacture modular, skid-mounted upgrading systems for small- to medium-scale biogas plants, delivering turnkey solutions for conversion of biogas to biomethane. Our upgrading units are engineered to provide economies of scale, ease of transportation, and rapid deployment, making them particularly well suited for remote and rural installations without pipeline access.

How it works

The upgrading process consists of a two-stage separation system:

1. Pre-treatment

Removal of impurities such as H_2S , moisture, and particulates to protect downstream equipment and ensure optimal membrane performance.

2. Membrane separation

The conditioned biogas is compressed and passed through membrane modules with selective permeability, where CO_2 is separated from CH_4 . This process delivers high methane purity with minimal methane slip, ensuring efficient upgrading and maximum gas recovery.

Applications

- Upgrading of biogas from agricultural, industrial, and wastewater sources
- Grid injection of biomethane
- Fuel production for transport applications
- Integration with downstream liquefaction or storage systems

Key Highlights

- Advanced membrane-based CO_2 separation technology
- Modular, skid-mounted design for efficient transport and installation
- Reduced construction and commissioning time, lowering overall CAPEX
- Optimized for remote and decentralized installations
- Flexible and scalable configuration across a wide capacity range
- Fully manufactured and tested in-house at our FNX facility in Spain



UPG-MS: Modular Membrane Solutions

Biogas Upgrading



Technical specifications: Scalable modular separation modules

Onuragas modules	Onuragas 200	Onuragas 500	Onuragas 1200
Biogas input flow nom.	200 Nm ³ /h (dry)	500 Nm ³ /h (dry)	1,200 Nm ³ /h (dry)
Biomethane production flow	120 Nm ³ /h	300 Nm ³ /h	720 Nm ³ /h
Biomethane	≤ 5 ppm		
Output pressure	13-16 bar		
Biomethane temp. cels.	25°		
Power consumption	0.29 kWh/Nm ³ (±5%)		
Carbon filters	2x silos, parallel, Stainless Steel		
Carbon filters VOC's	(1 or 2x) silos, parallel, Stainless Steel		
Country of origin	FNX manufacturing plant, Spain		
<p>Selected modules illustrated – data for other sizes on request. Modules can be configured and combined to cover any need.</p>			