

GMS HU15

Advanced humidification system designed for fuel cell and electrolyser testing.



GEMESIS



KEY FEATURES

- Dynamic humidity control for transient operating conditions
- High-precision regulation of humidity, temperature and flow
- Independent conditioning of air and hydrogen circuits
- Turnkey system compatible with GEMS and industrial test benches

01 - Executive Summary

The **GMS HU15** is an advanced humidification system designed for fuel cell and electrolyser testing applications. It provides precise and independent control of humidity, temperature and flow rate on both air and hydrogen lines, ensuring accurate reproduction of real operating conditions.

GMS HU15 is specifically engineered to reproduce dynamic test cycles, including WLTP profiles. Fully autonomous and CAN-controlled, it can be integrated into complete test benches or operated as a standalone system for R&D and industrial validation.

03 - Key Technical Specifications

Air Line

Flow rate	3 – 1200 NI/min
Pressure	0 – 2.5 barg
Temperature	20 – 90°C ±1°C
Dew point	10 – 90°C ±2°C
Relative humidity	0 – 100 % RH
Response time (20→60% RH)	< 15 min

Hydrogen Line

Flow rate	2 – 320 NI/min
Pressure	0 – 2.5 barg
Temperature	20 – 90°C ±1°C
Dew point	10 – 90°C ±2°C
Relative humidity	0 – 100 % RH
Response time (20→60% RH)	< 15 min

02 - Applications

Application 1	Fuel cell testing
Application 2	Electrolyser testing
Application 3	Dynamic humidity control
Application 4	Hydrogen system validation

System Architecture

Communication	CAN (Modbus / Profibus / EtherCAT optional)
Control system	Autonomous
Software	GEMS or custom software
Data logging	Yes
Integration	Stand-alone or test bench integration

Operating Conditions

Electrical supply	400 Vac – 63 A (3-phase)
Power	30 kW
Installation	Laboratory or industrial

04 - OPTIONS

Independent control of air and hydrogen lines
Multi-protocol communication (Modbus, Profibus, EtherCAT)
Integration into complete fuel cell test benches
Customized operating profiles
GEMS supervision and automation
Customized operating profiles

05 - Physical Characteristics

Dimensions (L x W x H)	1500 x 1300 x 2050 mm
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Empty weight	1.2 T
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Cabinet	Industrial floor-standing system
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06 - Key Advantages

- Independent humidity control for air and hydrogen
- Accurate temperature and dew point regulation
- Fast response for dynamic operating cycles
- Designed for fuel cells up to 15 kW
- Autonomous operation with CAN communication
- Turnkey and modular architecture
- Easy integration into existing test benches

07 - Services & Support

Installation	On-site commissioning
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Training	Operator & maintenance training
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Maintenance	Preventive & corrective support
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Upgrades	Hardware & software extensions
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