

C05-LT

Revolutionising PEM Fuel Cell Testing

100W PEM Benchtop Test Station

Explore the future HORIBA



Revolutionising PEM Fuel Cell Testing

The C05-LT is the next-generation fuel cell test station, specifically designed for researchers and engineers striving for repeatability, precision and accuracy in PEM (Polymer Electrolyte Membrane) fuel cell research.

With advanced temperature and pressure control systems, high-accuracy mass flow controllers and robust real-time monitoring, the C05-LT ensures repeatable and reliable results across all testing scenarios. Its integrated safety features, including independent safety control and automatic purging, affords users with the confidence and trust to incorporate the C05-LT into a stable, semi-autonomous testing environment.

Building on the foundation of proven HORIBA expertise, the system offers best-in-class performance for 100W PEM fuel cell testing with a comprehensive feature set, catering to the evolving needs of single-cell MEA / catalyst research. The all-in-one C05-LT is compact, robust, and versatile, and can become your cornerstone for fuel cell research and innovation.

C05-LT: Your Fuel Cell Research Partner

Accelerate your Research & Development with the best-in-class 100W Fuel Cell Test Stand



Catalyst and Membrane Development

Test new catalyst materials and membrane electrode assemblies (MEAs). Evaluate material composition against performance metrics.

Durability and Longevity Studies

Use the C05-LT to simulate long-term operation of PEM fuel cells and assess degradation. Identify failure mechanisms and improve fuel cell system reliability.

Gas and Water Management

Study gas flow dynamics and water management within fuel cells. Optimise humidification and analyse moisture impact on performance.

Performance Testing of PEM Fuel Cells

Evaluate fuel cell performance under controlled conditions. Analyse power density, current-voltage characteristics and efficiency at variable temperature, humidity, flow and pressure.

System Optimisation

Optimise system parameters maximise efficiency and performance. Create test programs & sequences and automate fuel cell testing.

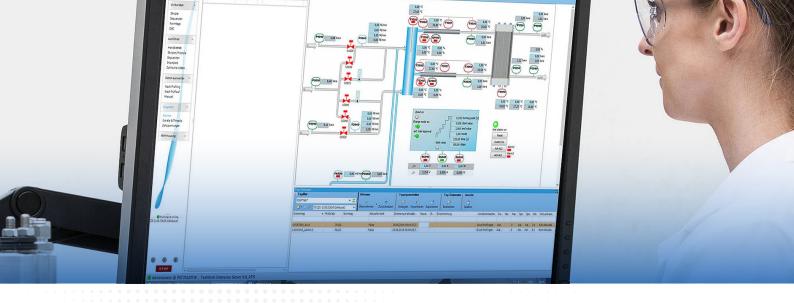
Electrochemical Characterisation

Unlock cyclic voltammetry and EIS along with prebuilt scripting templates & graphing to drive powerful data collection and analysis of fuel cell performance and electrochemical characterisation.

Best-in-Class Feature Set

- Market Leading Dew Point Control Ambient - 90°C ± 1°C
- Gas Temperature Control
 Ambient 130°C + 2%

- Yearly HORIBA Servicing and Calibration
- Robust Safety & Reliability through Independent Control
- CE Certified, RoHS & REACH Compliant



Next Generation Testing Performance

TestWork® software streamlines test sequence creation, data acquisition, analysis, and reporting, empowering users to achieve high-quality insights with greater efficiency and consistency.

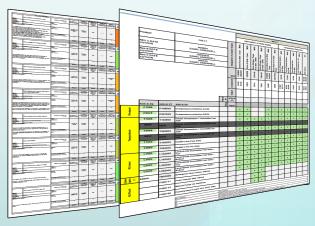
Unlock powerful code-free variable test sequence cockpits to enable precise, automated experiments and accelerated research and innovation.



- Intuitive operation with code-free test sequence creation & graphing
- Automated operation of complex test sequences & test programs
- Multi-level user access for controlling operation configuration rights
- Data export flexibility to support results analysis

C05-LT Superior Safety Performance







Independent Safety Control

Take confidence in PILZ independent safety control for protection against pressure, temperature, flow, water level & electrical E Stop events. Designed in accordance with CE safety requirements.

In-Built Assisted Ventilation

Considered ventilation, in addition to component selection, ensures longevity of your equipment and maintains the highest levels of safety in any safety event.

Layered Mechanical & Electrical Safety through Design

Comprehensive HORIBA risk and failure analysis driven by compliance to CE, PED, ATEX and LVD affords assurance & trust in the safety performance of the C05-LT.

Multistage Software Alarms

Continuous monitoring of all system sensing in addition to expected user operation commands to inform, warn and take control of test station operations and guarantee immediate, constant & long-term safety of users & equipment.

Nitrogen Purge Capability

Take control of safety through user controlled inert gas purging via software or hardware, in addition to software driven gas purging in emergency events.

H2 Environmental LEL Alarm Connectivity

Connect the C05-LT to your environment through multi level H2 gas sensing. Automate safety shut down in the event of failures outside the test stand.

C05-LT	Features
Power Rating	100 W
Test Item	Recommended for PEM single cells from 5 cm ² to 25 cm ² active area Fuel cell fixture Connection cables provided
Size	Fully integrated test stand system Dimensions: 570 x 570 x 845 mm high
Weight	Ca. 110 kg
Safety	Inbuilt PILZ safety PLC and independent safety control Automatic fail-safe nitrogen purge, initiated in alarm condition. Layered safety features & alarms External LEL Alarm connectivity
Regulatory Compliance	CE Certified RoHS Compliance
Humidification	2-stage heating for optimised gas saturation performance Water auto-fill & auto-levelling
Trace Heating	Heating hoses from test stand to item for precise and continuous gas control
Back Pressure	Manual adjustment back-pressure control atmospheric to 3.4barg Back pressure real-time monitoring via PLC & TestWork
Exhaust	Automatic condensate & gas exhaust
Test Capability	Nitrogen cross-over capability inbuilt Manual or automatic control via TestWork Complete flexibility in test sequence creation
Electronic Load	Current Range: 0 – 100 A Voltage Range: 0 – 6 V Minimum Voltage: 0.0 V (zero-volt functionality included)
Software	TestWork Enterprise software & license included Test Sequence templates included: Test Initialisation, LSV, CI, Break-In, Recovery, Polarisation Curve
PC	PC, monitor & peripherals with TestWork pre-installed
C05-LT	Optional Features
Potentiostat	CYV Potentiostat with HORIBA Enclosure (no additional floorspace required)
EIS	Electrochemical impedance spectroscopy (EIS) testing capability
Automatic Back Pressure	Automatic BPR with control & monitoring through TestWork
Independent Fuel Cell Heat- er Control Loops	Anode & Cathode independent fuel cell fixture control
Heated Line Transitional Heaters	Additional heated jackets between heated line outlet and fixture inlet
Fuel Cell Fixture	5-25 cm² Fuel Cell Fixture

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