

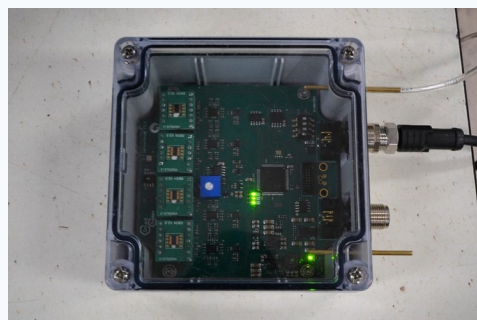
Fully Integrated Graphene FET Analyser

A standardized platform for controlled automated graphene sensor research

From sensing chemistry to reproducible data

The analyser integrates graphene receptors, multi-channel electronics, a sealed test chamber, environmental monitoring, cloud-connected software and automated reports.

Up to 16 graphene channels measured simultaneously



CORE PLATFORM SPECIFICATIONS

Measurement capacity	4 swappable receptor slots; up to 16 graphene channels simultaneously
Graphene receptors	Standardized, fully integrated chips on breakout boards; 4 channels per receptor
Channel geometry	Graphene channels: 100 x 300 μm (configuration shown in the current platform)
Reference measurement	Supports active and reference graphene channels; optional protected on-chip reference
Measurement modes	Continuous full Dirac profile scan and constant-gate-voltage operation; additional modes configurable
Chip temperature	Integrated heater per receptor for controlled chip temperature
Test environment	Sealed chamber compatible with external gas dosing equipment via standard tubing connections
Connectivity	Ethernet connection for cloud data transfer, remote data access and processing

DESIGNED FOR REPRODUCIBLE SENSOR DEVELOPMENT

Standardized

Ready-to-functionalize graphene hardware reduces setup variability.

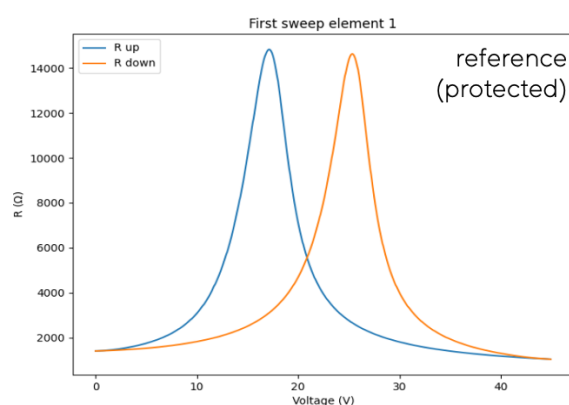
Controlled

Sensor response and environmental conditions are recorded together.

Automated

Acquisition, processing, plots and channel reports reduce manual work.

Dirac curve acquisition



Measurement, Software & Integration

One synchronized record of electrical response, environmental conditions and process settings

ELECTRICAL & SENSOR DATA	ENVIRONMENT & PROCESS DATA
• Full Dirac profiles. Continuous acquisition and comparison over time. • Derived characteristics. Resistance at selected gate voltage, V_{cnp}, hysteresis, forward/backward difference and maximum-slope metrics. • Behavioural analysis. Dose response, baseline drift, noise, repeatability, stability and event effects.	• Inside chamber. Temperature, relative humidity, tVOC and barometric pressure. • Chip monitoring. Chip temperature and gate-voltage monitor. • Optional setup signals. Outside temperature, Peltier power, MFC and valve data, and commercial reference-sensor values.

SOFTWARE AND AUTOMATICALLY GENERATED OUTPUTS

• Cloud-connected acquisition. Ethernet-based upload; no routine manual data collection or local storage required. • Per-channel reports. Graphene analytics, environmental values, chip temperature and connected setup signals. • Time-series outputs. Ready-made plots for key electrical, environmental and process parameters.	• Advanced visualization. Dirac-curve evolution and selectable 3D representations over time. • Data processing. Filtering, curve fitting, baseline prediction, signal processing and calibration workflows. • Export-ready figures. Plots designed for presentation and publication workflows with minimal manual editing.
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CONFIGURATION AND OPTIONS

Graphene chemistry & media	Receptors can be functionalized for different target molecules; ethylene-sensitive SMSE chemistry is available. Gas sensing is standard; liquid configurations are development-dependent.
Gas dosing integration	Compatible with MFCs, valves and external reference sensors; relevant setup data can be included in reports.
Conditioning	Optional SmartSense M1 hardware for temperature and humidity stabilization and sampling-air pretreatment.
Configuration note: Specifications reflect the platform described in the 10 June 2026 SmartSense pitch. Final electrical limits, measurement rate, heater performance, chamber/leak details, physical dimensions, power, interfaces, certifications and warranty are confirmed per configuration.	

Graphene FET data acquisition and processing

