NEW

FormFactor™

KEYSIGHT
Premium Solutions Partner

IMS-K-Cryo-LFN

Cryogenic Ultra Low Noise Probe System

The IMS-K-Cryo-LFN Integrated Measurement Solution combines FormFactor's Cryogenic Wafer Probers (multiple system options available) with Keysight's Advanced Low-Frequency Noise Analyzer (A-LFNA).

This powerful integrated system is designed for Ultra Low Noise (ULN) measurements at cryogenic temperatures ranging from room temperature down to below 4 K, enabling precise on-wafer measurements in extreme environments.

Some uses of this system include mitigation of random telegraph signal (RTS) noise, enhanced image and sensing quality, and improved performance for ROICs in applications like night vision, military surveillance, and industrial/ automotive thermal imaging.

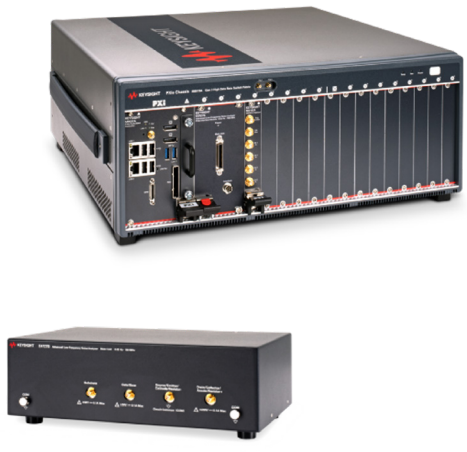
Noise Reduction
Mitigation of random telegraph signal noise in ROIC's

Enhanced Imaging
High performance and high quailty imaging technologies

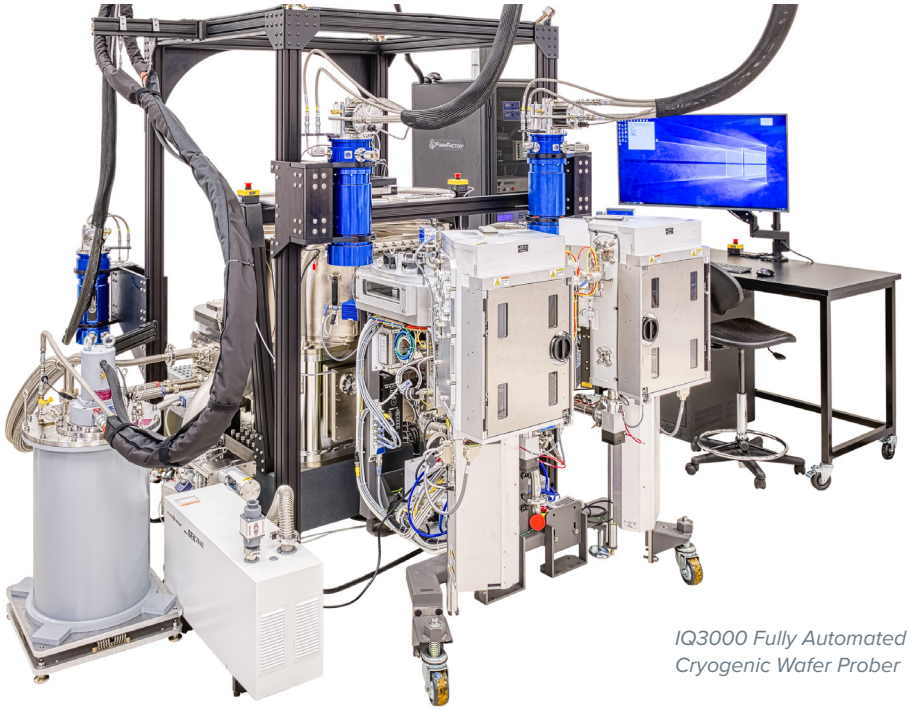
Precise Temperature Control
Between 4 K and 120 K with a stability of +/- 500 mK*

Rapid Wafer Cooldown
Room temperature to 4 K in <15 minutes

**+/- 100 mK expected*



E4727B Advanced Low-Frequency Noise Analyzer



IQ3000 Fully Automated Cryogenic Wafer Prober

SkyWater Technology has established a cryogenic lab which utilizes FormFactor's leading cryogenic probe systems. Additionally, SkyWater utilized FormFactor's Advanced Cryogenic Lab to gain early access to a cryogenic wafer prober which was crucial for test development (see QR code).

The **IQ3000** is an advanced Cryogenic Wafer Prober offering exceptional features for precise measurements. It provides cryogenic temperature control from 4 K to 120 K, and an ultra-low noise environment with remarkable temperature stability of approximately 100 mK. The IQ3000 boasts rapid time-to-data, with a wafer cooldown time of just 15 minutes from 300 K to 4 K. High throughput testing and unattended operation are facilitated by the sophisticated Velox™ software suite and fully automated wafer loading, supporting batch testing of up to 50 wafers.

The **Keysight A-LFNA** is a cutting-edge solution designed for precise low-frequency noise measurements. The A-LFNA offers fast, accurate, and repeatable measurements of low-frequency noise (LFN) and Random Telegraph Noise (RTN) on a wide range of device types. Its tight integration with PathWave WaferPro (WaferPro Express) software enables seamless control of automated probe stations, allowing for efficient mass wafer mapping of noise data. The A-LFNA consists of a module paired with a PXIe computer and digitizer, ensuring reliable and clean device biasing and noise signal conditioning.

IMS-K-Cryo-LFN General Applications

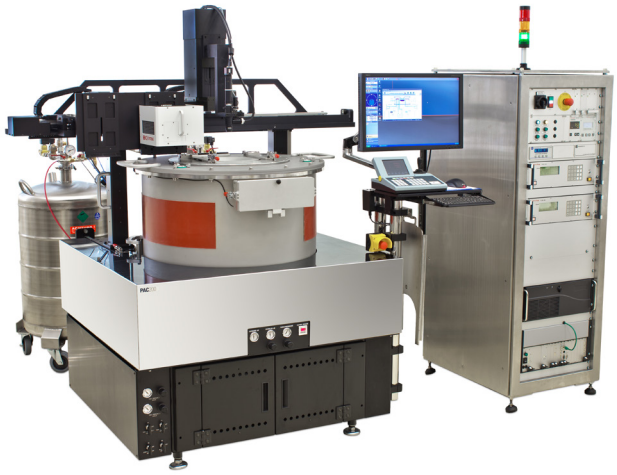
- Ultra Low Noise (ULN) measurements including 1/f flicker noise, Random Telegraph Noise (RTN)
- Precise on-wafer measurements in extreme cryogenic and vacuum environments
- Mitigation of RTN in read-out integrated circuits
- Performance and quality enhancement of imaging technologies
- Development of sensing technology for night vision, military surveillance systems, and industrial/automotive thermal imaging
- Empowering the R&D of cryogenic control circuits for next-generation quantum systems

IQ3000 Key Specifications

- 150 mm, 200 mm, and 300 mm wafers
- 50 wafer capacity with <15 minute exchange time between wafers
- Wafer temp <4.5 K with 44 RF probes or 80 DC probes in contact
- PID temperature control between 4 K and 120 K
- Temperature stability of +/- 500 mK (100 mK expected) at controlled temperatures

A-LFNA Key Specifications

- 30 mHz to 100 MHz
- Measures noise down to 1E-28 A2 /Hz (Typ.)
- Measures noise down to 30 pA bias current (Typ.)
- Current/voltage/power range of up to 0.1 A / 200 V / 10 W, respectively
- Time domain representations of noise
- 2.0 ns minimum time step
- Up to 16 million points sampling size



PAC200 Semi-Automated Cryogenic Wafer Prober (alternative system option)

skywater

Read the press release