

EMILIE™ DATASHEET

explore new frontiers in nanomaterials analysis

Identify nanomaterials by Fourier Transform infrared (FTIR) spectroscopy with unprecedented sensitivity.



SPECIFICATIONS & REQUIREMENTS

Table 1. General specifications

Spectral response range	NIR - FIR
Window material	Diamond
Chip temperature regulation range	0°C - 80°C
Maximum sample load	ca. 200 ng for M1000 chips
Optimal sample load	ca. 0.5 - 50 ng
Storage temperature	18°C - 35°C
Operating temperature	18°C - 35°C
Device weight	4,05 kg

Table 2. Measurement parameters

Purge gas	N2
Operating pressure	< 10 ⁻³ mBar
Response time	25 ms M1000 15 ms M500
Step scan (FTIR)	Stabilization delay > 20 ms Coadditions > 10
OPUS configuration	ILL-StepScan-Default.xpm ¹
PHILL harmonics configuration	Batch-tailored pre-settings for M1000 and M500 ¹

¹Available on invisible-light-labs.com

Table 3. EMILIE™ signal processing electronics

Voltage responsivity	0.3 - 333 mV/Hz
Max. frequency range	± 10 Hz - ± 10 kHz
Output signal voltage	± 3 VDC
Bandpass settings	1 kHz, 3 kHz, 5 kHz, 10 kHz

Table 4. EMILIE™ sampler options

Option 1	Luer lock® compatible fitting
Option 2	Straight tube connectors

Table 5. FTIR source requirements*

Bruker FTIR	Models Invenio R, Invenio X, Vertex 70 or Vertex 80
Requires the ASM external analog box	Must have step scan capability

Table 6. Vacuum pump requirements†

Type	Turbo or scroll pump (oil free)
Vacuum	10 ⁻³ mBar or better
Hose	KF25 flexible hose to connect to the EMILIE™ nanomechanical infrared analyser

Table 7. Other

Computer	Windows 10 or higher for PHILL™
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* The use of EMILIE™ is exclusively permitted in conjunction with laser devices classified as weak lasers of class 2, as stipulated by the IEC 60825-1 standard. If considering alternative light sources, such as a quantum cascade laser, in conjunction with EMILIE™, verify the laser class of your laser-emitting device before using

EMILIE™. For further assistance, feel free to reach out to Invisible-Light Labs.

† We recommend using EMILIE™ with the HiPace® 10 Neo vacuum turbo pump from Pfeiffer Vacuum GmbH, providing maximal efficiency with minimal footprint.