Invisible-Light Labs

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EMILIE™ DATASHEET

Explore new frontiers in nanomaterials analysis

Identify nanomaterials by NEMS-FTIR spectroscopy with unprecedented sensitivity

SPECIFICATIONS & REQUIREMENTS

Table 1: General specifications

Dimensions (LxWxH)	22×14×28 cm
Weight	7.4 kg
Response time	25 ms
Material of light entrance window	Diamond
Operating wavelength range	30 - 11.000 cm^{-1}

Table 2: Purge gas supply

Purge gas	Dry air or nitrogen gas (use only in well-ventilated environment)
Gas condition	Dry and clean (oil-free and dust-free)
Pressure range	max. 2 bar
Gas flow rate	sustained flow max. 200 liter/hour

Table 3: Control device specifications

Power supply voltage	PHILL™ : 100 - 240 VAC ± 10 % 50 - 60 Hz
Power consumption	6,25 W typical, max. 20 W
Output signal voltage	± 3 V DC
Input signal voltage	± 5 V DC
Required OS	Windows 10 or higher
Connection to PHILL™	Sub-D 15 cable
Connection to PC	Micro USB 2.0

Table 4: FTIR spectrometer requirements

Compatible with	Bruker Invenio R Bruker Invenio X Bruker Vertex 70/70v Bruker Vertex 80/80v
Required accessory	ASM external Analog-Box Bruker part No: E550/A
Required operating mode	Step scan must be available

Table 5: Vacuum pump requirements [1]

Type	Turbo or scroll pump (oil free)
Vacuum	<10^{-3}mbar achievable
Connector	KF25 with wall clamps

Table 6: Environmental and operation conditions

Ambient temperature range	5 °C to 35 °C
Operation pressure range [2]	5×10^{-6} to 10^{-3} mbar
Chip temperature control range [3]	5 °C to 80 °C

[1] We recommend using EMILIE™ with the HiPace® 10 Neo from Pfeiffer Vacuum GmbH, providing maximal efficiency with minimal footprint.

[2] EMILIE™ has been tested only at the specified operation pressure range.

[3] The minimum temperature achievable by the Peltier element is dependent on the ambient temperature. At 35 °C ambient temperature, a minimum temperature of 5 °C can be achieved by the Peltier element reliably