

Verification



IMP

Inheco Measurement Plate

Verification Tool IMP

Make sure your lab equipment works as specified

INHECO Measurement Plate - IMP

Product Description

Verify 'all-in-one' temperature uniformity, humidity and shaking pattern of ANSI/SLAS format devices from INHECO and other brands. Compatible with instruments integrated into liquid handling systems and stand-alone devices. The cordless design of the tool makes it easily usable even in closed incubator systems and readers. Data can be read out in different ways (USB or infrared interface IrDA) and analyzed with the provided software.

The IMP software enables a thorough analysis of the measurements regarding temperature, humidity and shaking performance. The measurement profile can comfortably be pre-adjusted for each run by connecting the IMP via USB to the PC. The IMP software allows to individually set and adjust parameters as 'measurement duration', 'scan interval for sensors' etc.

Ten temperature sensors distributed over the base plate of the IMP enable a highly precise and spatially resolved recording of the temperature uniformity. Further sensors record the ambient temperature and humidity. A three-axis acceleration sensor determines the shaking speed, amplitude and pattern. In closed systems, the IMP can be used between 4 °C and 60 °C.



IMP INHECO Measurement Plate, 7901000

Features

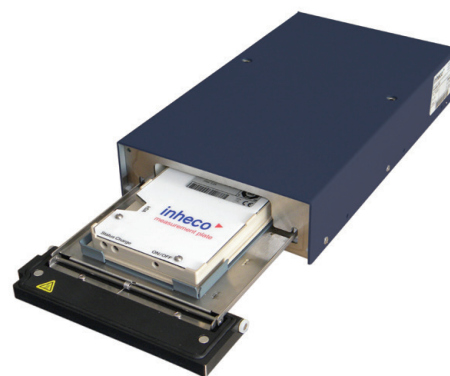
- 'All-in-one' verification: Temperature, humidity, shaking
- Records shaking pattern, RPM & amplitude for QC purposes
- Measures temperature and humidity inside incubators
- Also suitable for plate readers
- Flexible data transfer via USB and IrDA
- Cordless design allows measurement in closed systems
- Easy automated handling by common gripper systems
- Alternative internal data storage on EEPROM
- Export of data in CSV format for customized evaluation
- IMP data analysis software for thorough analysis of measurements

Scope of delivery

The evaluation software, manual and a quick start guide are included in the IMP package and are stored on the included MicroSD Card.

The heated/cooled surface of the test target device must be flat for a reliable verification process, otherwise a flat bottom adapter is required to establish a proper thermal contact between the plate and the IMP. The IMP can be ordered with NIST/DAkkS calibration that is performed by accredited calibration laboratories. Temperature and shaking calibrations can be ordered separately. Annual re-calibration is recommended.

The IMP comes with a flat bottom contact surface. The temperature of INHECO's heaters and coolers (HeatPAC, CPAC) are typically verified in combination with a flat bottom adapter. The heating cooling shaker (Thermoshake) is measured without adapter. Adapters for other formats, such as 96 well PCR plates, are available on request. Adapters are listed on page 3.

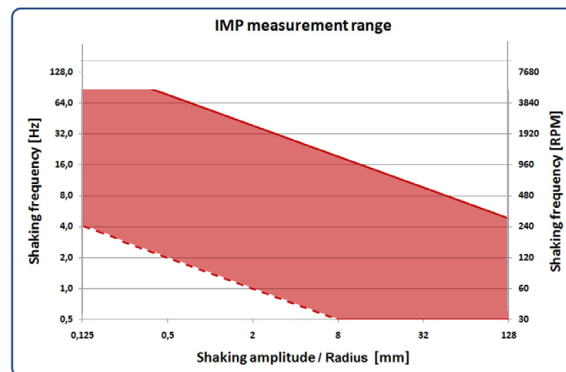


Incubator MP with IMP, 7300003

Product	Part No.	Dimensions W x D x H (mm)	Weight	Temperature range
IMP	7901010	87.5 x 128 x 15	100 g	4 °C to 60 °C
Temperature calibration NIST/DAkkS	7901011			
Shaking calibration NIST/DAkkS	7901004			

Main specifications

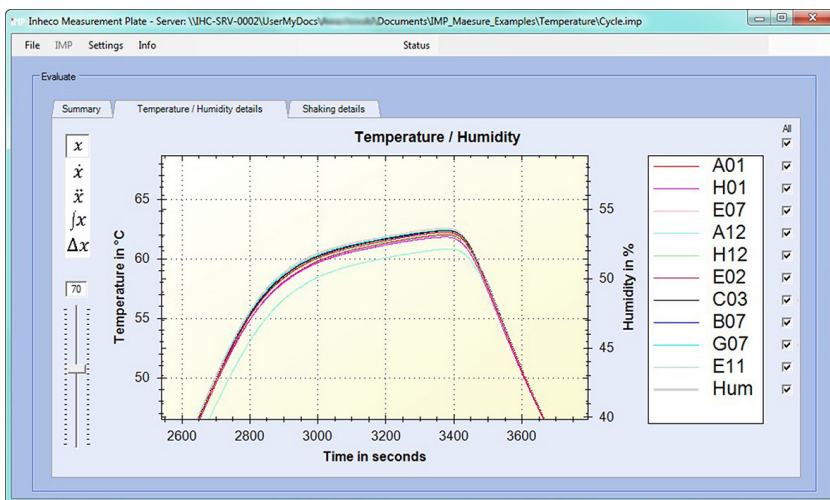
Specifications	7901000
Interface (besides Micro-SD-Card)	USB (1.1 / 2.0 / 3.0), IrDA
Temperature sensors for uniformity measurement	10
Ambient temperature sensor	1
Temperature precision of one sensor	± 0.03 K
Accuracy shaking amplitude	$\pm 10\%$
Accuracy shaking RPM	$\pm 5\%$
Relative humidity 11%-90%	$\pm 2\%$
Relative humidity 0%-10%, 91%-100%	$\pm 4\%$
Temperature range target device	4 °C to 60 °C; for 60 °C to 100 °C contact INHECO
Max. # of points (without μ SD)	10,000
Battery run-time in operation ¹⁾	approx. 16 hours
Temperature uniformity (calibrated)	± 0.1 K
Temperature accuracy ³⁾ (calibrated)	± 0.1 K
Temperature accuracy ³⁾ @60 °C on Flat Bottom ²⁾	± 0.8 K



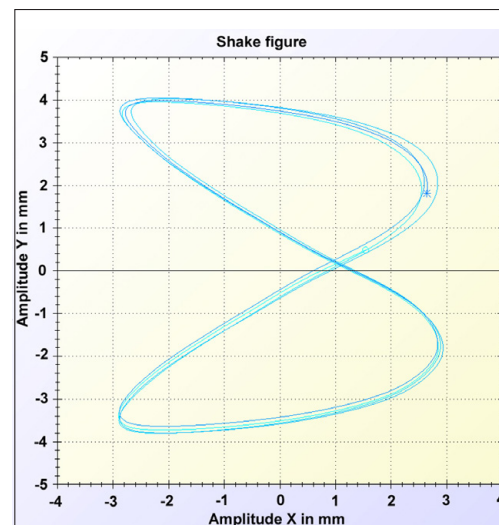
Shaking measurement range

- ¹⁾ at ambient temperature
- ²⁾ measured at 60°C on a Flat Bottom Adapter with a CPAC unit
- ³⁾ mean value of all 10 sensors

Example Features of Evaluation Software



Example of a temperature graph



Example of a shaking graph

Accessories¹⁾

Product	Designed for INHECO Products	Part No.
Flat Bottom Adapter	Heater/Cooler (HeatPAC, CPAC)	7900016
—	Heated and Cooled Shaker Teleshake and Thermoshake Product Lines	Integral part of the device

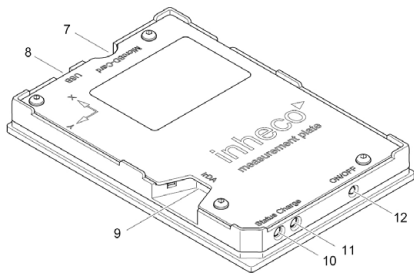
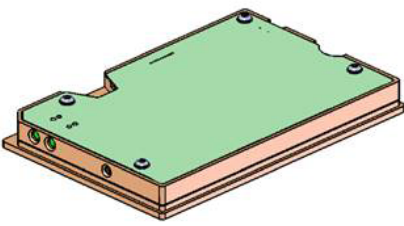
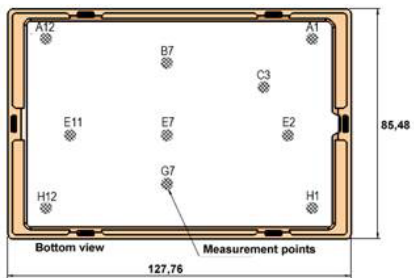


Flat Bottom Adapter, 7900016

¹⁾ Custom adapters available on request

Visit us on www.inheco.com

Drawings



- (7) Micro SD-Card Holder
- (8) USB Connector
- (9) IrDA Interface
- (10) Status LED
- (11) Battery Charge LED
- (12) ON/OFF Switch

