

ORBIS BV

Innovation in distillation



PAMv2

Automatic Distillation testing
by Orbis BV



“Reliability is important to me”

“And performance”

“And safety”

“And using it should be really easy, too”.



PAMv2 quick overview

- Performance:

Accurate & repeatable IBP/FBP detection. Fast, on-the-fly heater control to maintain 4-5ml/m rate even with difficult samples.

- Reliability:

No fluids and almost no moving parts are used in PAMv2. This ensures reliability and low maintenance on the entire instrument and the condenser unit in particular.

- Software:

Depending on access rights, users either get basic functions (“choose program/press start”, etc.) or access to all customization options. Test data are available in PDF & XML. Windows/LIMS connection is possible.

- Safety:

Flame detector, fire extinguisher and auto-shutdown in case of fire.

Automatic Heater Control

One of the most important and critical parts in automatic distillation, but also the most difficult to accomplish, is the process of quickly and accurately controlling the heater. This requires the earliest recognition of change in the distillation speed. Unlike other instruments, PAMv2 is equipped with multiple parameter checkpoints that provide the earliest information about the distillation speed. These parameters are put in a unique formula that dynamically calculates the right amount of power to be sent to the heater.

The advantage of PAMv2’s unique heater control especially showcases at moments of quick speed and/or vapor temperature change:

- at the beginning of the distillation at IBP (Initial Boiling Point), the first 5 milliliters, and with some samples also up to the first 10 or even 20 milliliters.
- at the end of the distillation, from 90 milliliters until FBP (Final Boiling Point).
- with difficult “light” samples, blended samples like Gasoline E10 and E20, and other specially composed samples.

Software Application on iPad

The DistPad app for iPad functions as interface: it sends commands to - and receives test data from the instrument. The test runs independently on PAMv2’s internal microprocessor, and is not dependent on the (in)stability of a computer’s operation system.



The app and its updates are always free

Precise & accurate

User friendly

High quality

PAMv2 benefits

- Extremely precise, reliable and comparable test results
- Fast, easy & fully automatic operation, yet offers in-depth customization settings for experienced users
- High end, solid state hardware:
 - Volume Scanner: reliable & accurate volume detection
 - Condenser: Peltier cooled without fluids / moving parts
 - Heater: low mass, low voltage, fast & agile interactions
- Safety: UV fire detector, fire extinguisher (needs CO2 / N) and automatic heater shut-off in case of fire
- Free software includes extra's such as:
 - Making custom points (vol. at specific temp. & vice versa)
 - Built-in reference database for quality control samples
 - Changing certain program parameters during distillation
 - Password protected user accounts (various access levels)
 - Multiple language support

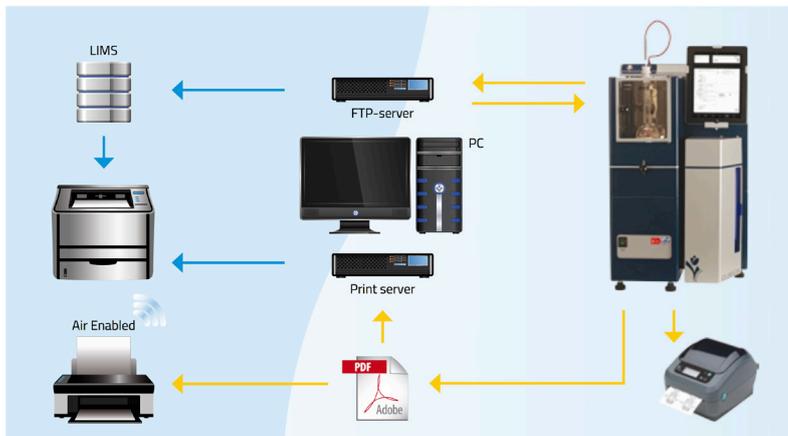


Reliable & safe
 Manufactured in
 The Netherlands

Data handling and printing options

Backup, restore and synchronise data with a Windows PC, FTP server and/or LIMS. Results are either XML or PDF files.

Print on any AirPrint enabled printer, use the Orbis Kiosk printer or email results directly from the iPad to an email account.

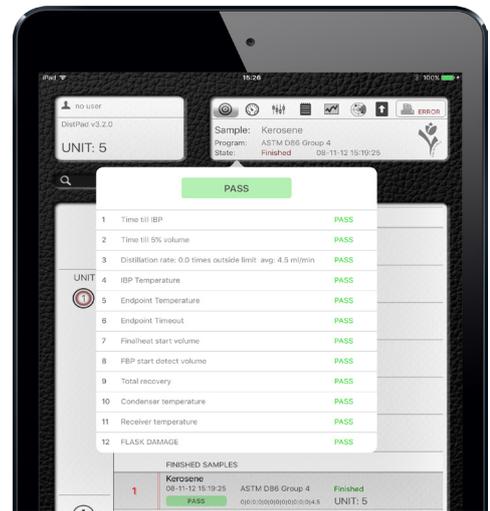


Methods	ASTM D86, D1078, D850, E123, IP195, DIN51751, ISO 3405, GOST 2177
User interface	iPad with DistPad app software
Heating system	Low mass/low voltage heater Fast cooling when test is finished Automatic shut-off in case of fire
Initial heat	Auto-InHeat for first time/unknown samples Smart program optimization for second time/future tests
Final heat	Automatic & customizable
Condenser system	Peltier cooled: no fluids, valves or moving parts involved Fast cooling interactions Temp. range 0 – 65 °C. Resolution 0.1 °C
Volume detection	Smart CCD camera for accurate volume measurement Detects actual bottom of meniscus. Resolution: 0.01 ml, accuracy: 0.01 ml, charge volume: 0- 103% Automatic calibration on calibrated ring marks on receiver glass
Receiving chamber	Peltier cooled: no fluids, valves or moving parts involved Temp. range: 0 – 45 °C Resolution 0.1 °C.
Residue	Automatic or manual measurement
Vapor temperature measurement	0 – 450 °C ASTM, 0 – 500 °C Absolute PT-100 class A probe, automatic probe ID detection, calibration certificate standard supplied. True dynamic simulation of Mercury in-glass thermometer behavior (lag and stem)
Pressure	Automatic atmospheric pressure correction of test results System calibration against built-in pressure sensor Range: 70 to 110 kPa, resolution 0,1 kPa
Safety	UV sensor for fire detection. Built-in fire extinguisher requires nitrogen or CO2 supply from lab (connection hose is supplied)
System health	Automatic and fast system health check before every distillation run to ensure all components are in excellent state
Connectivity	1 x ethernet for connection to LIMS, Windows PC, FTP server, Kiosk printer and/or connection between multiple PAMV2 units
Dimensions	Dimensions: 40cm x 40cm x 65cm (WxDxH), weight: 40 kg
Accessories	Zebra printer
Voltage	100-240 VAC 50/60 Hz
Power	1200 W
Operating requirements	Environment temperature 10 °C – 35 °C. Environment humidity up to 80 % at 35 °C.



Simplicity and flexibility

Easily run samples using automated programs with preset ASTM methods. Run special sample products with program customization and get free support from ORBIS BV experts for extremely difficult samples.



Quick & Easy evaluation

Get a quick overview on whether a test passed on method specifications such as time to IBP, distillation rate, condenser temperature and 9 other check parameters.



Automatic calibration and verification

The Volume Scanner self-calibrates to the receiver ring marks every new test. Condenser temperature, receiver chamber temperature, barometric pressure and system temperature are calibrated by Orbis trained service personell. Vapor probe calibration is typically carried out at Orbis BV factory or by certified calibration laboratories. Offset values are then entered in the DistPad app and stored in the vapor probe's internal memory. Built-in reminders help keep track of required calibration and verification.



Auto In-Heat and Optimization

No need for pre-knowledge or initial heat settings when testing a sample for the first time: Auto-Inheat controls the heater automatically to reach IBP in time and with the right distillation rate. After this first test, PAMv2's smart learning mode suggests fixed initial heat and final heat settings to optimize the program for future tests. (Fixed program settings increase repeatability compared to running each test with Auto-Inheat).



Custom points

Easily create custom points to report temperature at any % volume, or volume at any °C temperature. DistPad stores all data, so creating and retrieving custom points on finished tests is no problemo.



Quality control with reference database

To evaluate the repeatability and reproducibility of data reference points such as temperature at % volume (& vice versa), IBP, FBP, etc., the DistPad app is equipped with a reference database. Reference points are created in the test program. Even data of previously run tests will be included in the reference database.

INTERESTED IN A QUOTE OR LIVE DEMONSTRATION?

CONTACT:
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ALSO AVAILABLE AIRSTAR CFPP & CP/PP

Features:

- ColdBlock: AirSTAR's integrated cooling unit (cools down to -105°C)
- CFPP & CP/PP Heads: easy & modular use (and investment)
- Completely according to traditional test methods



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