OptiMelt provides a fast and accurate means of automatically determining the melting points and melting ranges of chemical substances. Up to three samples can be analyzed simultaneously. A wide observation window, with an illuminated magnification lens, allows users to observe the samples at all times. A small aluminum heating block is kept under tight computer temperature control, providing extremely linear temperature ramping. A precision Pt RTD sensor provides fast and accurate temperature readings from room temperature to 400 °C with 0.1 °C resolution.

Automated Measurements

OptiMelt is specifically designed for unattended operation. It has a built-in digital camera that continuously captures real-time images of the samples, and it uses digital image processing to determine results. The melting points and melting ranges are prominently displayed on the front panel and automatically recorded into memory for later review.

OptiMelt provides a dramatic improvement over instruments that rely on optical absorption or reflection techniques. OptiMelt’s high-resolution camera can easily detect minute changes in the optical characteristics of the samples, eliminating the need for an operator to be present.

Simple Operation

OptiMelt has an intuitive front panel and is very easy to use. You simply select the start temperature, ramp rate, stop
Accurate Results

OptiMelt uses a platinum RTD sensor and makes temperature measurements to 400 °C with 0.1 °C resolution.

The instrument is easily calibrated in the field against certified reference standards and complies with modern Pharmacopeia protocols. The instrument remembers the date of the last calibration which is included in all reports.

Fast Measurements

The aluminum oven design, along with microprocessor-controlled temperature ramping, provides fast and repeatable warm-up and cool-down cycling. Programmable ramp rates from 0.1 °C/min to 20 °C/min, in 0.1 °C/min increments, provide measurement flexibility.

The heating chamber consists of a removable aluminum block. Its small size ensures excellent sample-to-sample reproducibility and minimizes thermal lag between the thermometer and samples.

The ability to rapidly preheat the oven to a temperature slightly below the expected melting point minimizes analysis time.

Data Logging

OptiMelt meets modern GLP requirements for melting point determinations. Up to 24 different analysis methods can be stored in memory. Eight complete melting point reports can also be saved. Records can displayed on the front panel, printed, or transferred to a PC via USB. Printouts include technician identification and space for a signature.
MeltView Software

The MeltView software allows you to display live, high-resolution images of your samples during analysis.

The three screen-captured images below were collected during a typical melt. Figure 1 shows the unmelted solid samples, figure 2 reveals the meniscus point, and figure 3 corresponds to the end of the melt (clear point). Stored images may be recalled at any time, and can be played back frame-by-frame or as a movie.

Figure 1 — Solid samples

Figure 2 — Meniscus point

Figure 3 — Clear point

Thermometer Input and Timers

OptiMelt is the only melting point apparatus that can also be used as a general-purpose digital thermometer and timer. Between melting point determinations, OptiMelt may be used with a Pt RTD to measure and log temperatures around the lab. Three built-in timers are also available to keep track of timed events during experiments.

Digital Image Processing

The OptiMelt system is unique among melting point analyzers. It has a built-in digital camera to capture real-time images of the samples. It then uses digital image processing to determine phase transitions in the samples.

The unattended melting points and melting point ranges determined by OptiMelt closely match visual results. OptiMelt’s digital image processing algorithm provides a dramatic improvement over optical absorption or reflection techniques.
**MPA100 Specifications**

**Operation**

- **Temperature display**: Melting point and melting point range
- **Start temp. range**: (Ambient + 10 °C) to 396 °C, 0 °C minimum set point
- **Stop temp. range**: (Start temperature + 4 °C) to 400 °C
- **Temperature resolution**: 0.1 °C
- **Ramp rate**: 0.1 °C to 20 °C per minute (0.1 °C increments)
- **Heat-up time**: ~10 minutes (50 °C to 350 °C)
- **Cool-down time**: ~10 minutes (350 °C to 50 °C)
- **Temperature accuracy**: ±0.3 °C (up to 100 °C), ±0.5 °C (up to 250 °C), ±0.8 °C (up to 400 °C)
- **Reproducibility**: 0.2 °C
- **Temperature sensor**: Pt RTD (built-in)
- **Oven control**: Closed-loop PID

**General**

- **Display**: Back-lit, touchscreen LCD (5.8”)
- **Computer interface**: USB. All instrument functions can be queried and controlled through a high-level command set.
- **MeltView software**: Windows compatible (USB port)
- **Capillaries**
  - **Dimensions**: 1.4 mm to 2.0 mm outside dia., 100 mm length
  - **Capacity**: Up to 3 tubes simultaneously
  - **Fill height**: 2 mm to 3 mm
- **Ext. RTD input**: 100 Ω Pt RTD, α = 0.00385 Ω/Ω/°C
- **Power**: 90 to 264 VAC, 47 to 63 Hz, 125 W
- **Operating temperature**: 0 °C to 40 °C, non-condensing
- **Weight**: 9 lbs.
- **Dimensions**: 7.5” × 10” × 8.5” (WHD)
- **Warranty**: One year parts and labor on defects in materials and workmanship

**Ordering Information**

- **OptiMelt (MPA100)**: Melting point apparatus with USB port and MeltView software $2995
- **O100P**: Printer with cable and paper $595
- **O100MPC**: Capillaries (300 pcs.) $150
- **O100MPS**: Melting point standards $395