

# Agilent Flow Cytometer Specifications

NovoCyte Penteon (5 Lasers)

NovoCyte Quanteon (4 Lasers)

NovoCyte Advanteon (1-3 Lasers)

A breakthrough in flow cytometry design, the Agilent NovoCyte Penteon, NovoCyte Quanteon, and NovoCyte Advanteon provide up to 30 fluorescence channels to meet the most demanding panels. The detectors have a 7.2 log dynamic range and advanced autocompensation features, alleviating the need to tune each detector. You now have the flexibility to choose from 30 fluorescence channels using one to five lasers, without having to sacrifice the performance in one channel for another.

## NovoCyte Penteon NovoCyte Quanteon NovoCyte Advanteon specifications

| Lasers                          | 349 nm           | 405 nm | 488 nm | 561 nm | 637 nm |
|---------------------------------|------------------|--------|--------|--------|--------|
| 445/45 nm                       | ✓                | ✓ ✓ ✓  |        |        |        |
| 525/45 nm                       | ✓                | ✓ ✓ ✓  | ✓ ✓ ✓  |        |        |
| 586/20 nm                       | ✓                | ✓ ✓ ✓  | ✓ ✓ ✓  | ✓ ✓ ✓  |        |
| 615/20 nm                       | ✓                | ✓ ✓ ✓  | ✓ ✓ ✓  | ✓ ✓ ✓  |        |
| 667/30 nm                       | ✓                | ✓ ✓ ✓  | ✓ ✓ ✓  | ✓ ✓ ✓  | ✓ ✓ ✓  |
| 695/40 nm                       |                  | ✓ ✓    | ✓ ✓ ✓  | ✓ ✓ ✓  | ✓ ✓ ✓  |
| 725/40 nm                       | ✓                | ✓ ✓ ✓  | ✓ ✓ ✓  | ✓ ✓ ✓  | ✓ ✓ ✓  |
| 780/60 nm                       | ✓                | ✓ ✓ ✓  | ✓ ✓    | ✓ ✓ ✓  | ✓ ✓ ✓  |
| NovoCyte Penteon (5 Lasers)     |                  |        |        |        |        |
| NovoCyte Quanteon (4 Lasers)    |                  |        |        |        |        |
| NovoCyte Advanteon (1–3 Lasers) | Pick up to three |        |        |        |        |

|                             | Specification  | Description   |
|-----------------------------|--|---|
| Optics                      | Laser  | Solid state laser with onboard thermal-electric cooling and guaranteed thermal stability and beam quality   |
|                             | Laser beam profile   | 10 × 60 µm elliptical beam  |
|                             | Laser operation  | Laser on only when acquiring samples  |
|                             | Optical alignment procedure  | Fixed; no operator alignment required   |
|                             | Laser power  | NovoCyte Advanteon: 405 nm 50 mW, 488 nm 60 mW, 561 nm 50 mW, 640 nm, 40 mW<br>NovoCyte Quanteon: 405 nm 100 mW, 488 nm 100 mW, 561 nm 100 mW, 637 nm 100 mW<br>NovoCyte Penteon: 349 nm 20 mW, 405 nm 100 mW, 488 nm 100 mW, 561 nm 100 mW, 637 nm 100 mW      |
|                             | Fluorescence detection   | Silicon photomultiplier (SiPM) with high photon detection efficiency, individual photodetector for each channel   |
|                             | FSC/SSC sensitivity  | FSC: 0.4 µm, SSC: 0.1 µm  |
|                             | Fluorescence threshold sensitivity   | NovoCyte Quanteon/Penteon: FITC ≤40 MESF, PE≤10 MESF, APC ≤10 MESF, Pacific Blue ≤30 MESF<br>NovoCyte Advanteon: FITC ≤45 MESF, PE ≤15 MESF, APC ≤15 MESF, Pacific Blue ≤35 MESF  |
|                             | Fluorescence resolution  | <3% CV for CEN  |
|                             | Optical filters  | User exchangeable, smart filter automatically read by the system  |
| Fluidics                    | Flow cell  | 170 × 290 µm rectangular quartz flow cell   |
|                             | Sample acquisition rate  | 100,000 events/second   |
|                             | Sample delivery  | Positive-displacement syringe pump, enabling direct volumetric absolute count without the need for reference counting beads   |
|                             | Volumetric absolute count precision  | <5%   |
|                             | Sample flow rate   | 5 to 120 µL/min, continuously adjustable  |
|                             | Sheath flow rate   | 6.5 mL/min  |
|                             | Sample acquisition volume  | 5 µL to 5 mL  |
|                             | Manual sample format   | 12 × 75 mm tube, 1.5 mL Eppendorf tube  |
|                             | Connection to autosampler  | No fluidic tubing disassembly or reconnection required  |
|                             | Fluid level sensing  | Active sensing using weight sensors with automated warnings when any fluid level is out of specified range  |
|                             | Fluid container capacity   | 3 L sheath, 3 L waste, 500 mL cleaning, 500 mL rinse, optional large container for sheath (15 L), and waste (15 L)  |
|                             | Carryover  | <0.1%   |
|                             | Sample injection probe (SIP) rinse   | Automated flying collar wash of inner and outer SIP surface after each sampling   |
|                             | Fluidics system monitoring   | Inline pressure sensor monitors the pressure in real time. Automated system recovery when pressure is out of range due to clogging.   |
| Fluidics system maintenance | Automated startup and shutdown with fluidic system cleaning. Automated user executable cleaning, debubble, rinse, extensive rinse, unclog, priming, and decontamination. |   |
| Data management             | Software   | Agilent NovoExpress   |
|                             | Parameters   | Height and area for FSC, SSC and all fluorescence channels, width off FSC, time   |
|                             | Dynamic range  | 24 bit, 7.2 decades logarithmic scale   |
|                             | Fluorescence photodetector gain control  | User adjustable, optimized, default gain setting for each individual channel  |
|                             | Compensation   | Full inter-beam matrix, during or after acquisition   |
|                             | Output data files  | FCS 3.0, FCS 3.1, CSV, batch PDF reports  |
|                             | Data report  | Automatic report, customizable report, batch PDF report   |
|                             | Workstation  | Intel core i7 processor, 8 GB RAM, 1 TB hard drive, small form factor, optional higher configuration workstation  |
|                             | Monitor  | 23.8 in flat panel (1,920 × 1,200 resolution)   |
|                             | Computer operating system  | Microsoft Windows 10 Professional (64 bit) or new version with Microsoft Office preinstalled  |
|                             | Usage monitor  | Comprehensive transaction log and system log  |
|                             | User management  | Administrative creation of individual user accounts and user groups with privilege control. Configurable roles for individual users. User operation time tracking.  |
| Physical parameters         | Dimensions (W × D × H)   | NovoCyte Penteon: 33.5 × 18.1 × 18.8 in (85 × 46 × 48 cm) with Agilent NovoSampler Q<br>NovoCyte Quanteon: 33.5 × 18.1 × 18.8 in (85 × 46 × 48 cm) with Agilent NovoSampler Q<br>NovoCyte Advanteon: 33.5 × 18.1 × 18.8 in (85 × 46 × 48 cm) with NovoSampler Q |
|                             | Weight   | NovoCyte Penteon 138 lbs (62.5 kg) With NovoSampler Q<br>NovoCyte Quanteon 138 lbs (62.5 kg) With NovoSampler Q<br>NovoCyte Advanteon 123 lbs (56 kg) with NovoSampler Q  |
|                             | Operating temperature  | +15 to +30 °C   |
|                             | Operating humidity   | Relative humidity: 80% maximum  |
|                             | Power requirements   | 100/115/230 VAC, 50 to 60 Hz  |

## NovoSampler Q specifications

| Specification              |                                     | Description  |
|----------------------------|-------------------------------------|--|
| Physical Parameters        | Dimension (W × D × H)               | 16.9 × 11.0 × 11.8 in (43 × 28 × 30 cm)  |
|                            | Weight                              | 29.3 lb (13.3 kg)  |
| Installation               | Installation method and calibration | Automated self-calibration after installation. No need to reconfigure fluidics tubing or connection.                                       |
| Performance and Capability | Labware compatibility               | 40-tube rack for 12 × 75 mm tube, 24-well, 48-well, 96-well (flat, U-, V-bottom), and 384-well microplates.                                |
|                            | Labware calibration                 | Automated bottom height mapping and calibration to accommodate different labware. Calibrated labware template can be saved for future use. |
|                            | SIP collision detection             | Automated fluidics system recovery after detection of SIP collision; automatic acquisition of the next sample after successful recovery.   |
|                            | Carryover                           | <0.1%  |
|                            | Mix mode                            | Orbital shaking up to 3,000 rpm. User-definable mixing frequency, speed, acceleration, and duration.                                       |
|                            | Bar code reading                    | Integrated barcode reader. Automatically prompt barcode as specimen name in the software.  |
|                            | Fluidics system rinse               | Automated postsampling rinse for every sample. User-definable extra rinse cycle and rinse frequency.                                       |

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