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## Specifications

### Microplates

- All models accommodate standard 96-well microplates, and up to 8 BioCells.
- The PowerWave HT also accommodates standard 384-well microplates.

### Speed of Reading

The plate read time and accuracy are dependent on the method of reading:

- Normal mode is the slowest of the three available modes. After positioning the well over the beam, the instrument waits 100 milliseconds before taking the measurement (8-flash data collection). Note: The 100 ms delay is to allow for more complete fluid settling.
- Rapid mode is faster than Normal mode because the instrument does not wait before taking the measurement (8-flash data collection).
- Sweep is the fastest of the three available modes. The plate carrier sweeps each row past the optics channel without stopping, and collects data with a single flash at each well as it goes by.

The following read times are based on a single or dual wavelength measurement. Actual reading speeds may vary, depending upon the reading wavelength selected. Each wavelength has a unique location within the monochromator, and the different locations require varying amounts of time to position.

| <b>96-Well Read Timing</b> | <b>630 nm</b> | <b>630/450 nm</b> |
|----------------------------|---------------|-------------------|
| Normal Read Mode           | Single        | Dual              |
| Endpoint                   | 16 to 25 sec. | 26 to 44 sec.     |
| Rapid Read Mode            | Single        | Dual              |
| Endpoint                   | 16 sec.       | 26 sec.           |
| Sweep Read Mode            | Single        | Dual              |
| Endpoint                   | 11 sec.       | 16 sec.           |

Kinetics: All three read modes are available in Kinetics mode. Single wavelength reads are limited to the following minimum times.

20 seconds from A1 to A1 in Normal mode, single wavelength, depending upon density of solution.

11 seconds from A1 to A1 in Rapid mode, single wavelength.

5 seconds from A1 to A1 in Sweep mode, single wavelength.

| <b>384-Well Read Timing</b> | <b>630 nm</b> | <b>630/450 nm</b> |
|-----------------------------|---------------|-------------------|
| Normal Read Mode            | Single        | Dual              |
| Endpoint                    | 32 to 67 sec. | 57 to 129 sec.    |
| Rapid Read Mode             | Single        | Dual              |
| Endpoint                    | 28 sec.       | 49 to 51 sec.     |
| Sweep Read Mode             | Single        | Dual              |
| Endpoint                    | 17 sec.       | 28 sec.           |

Kinetics: All three read modes are available in Kinetics mode. Single wavelength reads are limited to the following minimum times.

66 seconds from A1 to A1 in Normal mode, single wavelength, depending upon density of solution.

23 seconds from A1 to A1 in Rapid mode, single wavelength.

11 seconds from A1 to A1 in Sweep mode, single wavelength.

## Optical Specifications

|                          |   |
|--------------------------|---|
| $\lambda$ range:         | 200 to 999 nm (PowerWave HT)<br>340 to 999 nm (PowerWave 340) |
| $\lambda$ accuracy:      | $\pm 2$ nm  |
| $\lambda$ repeatability: | $\pm 0.2$ nm  |
| $\lambda$ bandpass:      | 5 nm  |

## Optical Performance

*Flat- and round-bottom full-well plates*

**Absorbance Measurement Range:** 0.000 to 4.000 OD

### Accuracy:

0.000 to 2.000 OD  $\pm 1.0\%$   $\pm 0.010$  OD Normal and Rapid modes, all plates

2.000 to 2.500 OD  $\pm 3.0\%$   $\pm 0.010$  OD Normal and Rapid modes, all plates

2.500 to 3.000 OD  $\pm 3.0\%$   $\pm 0.010$  OD Normal 96-well plates only

0.000 to 1.000 OD  $\pm 1.0\%$   $\pm 0.010$  OD Sweep mode, all plates

### Linearity:

0.000 to 2.000 OD  $\pm 1.0\%$  Normal and Rapid modes, 96-well plates

0.000 to 2.000 OD  $\pm 2.0\%$  Normal and Rapid modes, 384-well plates

2.000 to 2.500 OD  $\pm 3.0\%$  Normal and Rapid modes, all plates

2.500 to 3.000 OD  $\pm 3.0\%$  Normal mode, 96-well plates only

0.000 to 1.000 OD  $\pm 1.0\%$  Sweep mode, all plates

**Repeatability:**

0.000 to 2.000 OD  $\pm 1.0\% \pm 0.005$  OD Normal and Rapid modes, 96-well plates  
 0.000 to 2.000 OD  $\pm 2.0\% \pm 0.010$  OD Normal and Rapid modes, 384-well plates  
 2.000 to 2.500 OD  $\pm 3.0\% \pm 0.005$  OD Normal and Rapid modes, all plates  
 2.500 to 3.000 OD  $\pm 3.0\% \pm 0.005$  OD Normal mode, 96-well plates only  
 0.000 to 1.000 OD  $\pm 2.0\% \pm 0.010$  OD Sweep mode, all plates

For the above performance, the Gain on Optics test should be below 10.0.

**Hardware and Environmental Specifications**

|                        |  |
|------------------------|--|
| Light Source:          | Xenon flash light source<br>- 10 W max. average power<br>- Life: 1 billion flashes |
| Dimensions:            | 16.0" deep x 8.5" wide x 8.5" high<br>(40.6 cm deep x 21.6 cm wide x 21.6 cm high) |
| Weight:                | 24 lb. (10.9 kg)   |
| Environment:           | Operational temperature 18° - 40°C   |
| Humidity:              | 10% to 80%, non-condensing   |
| Power Source:          | 24-volt external power supply compatible with<br>100-240 V~ $\pm 10\%$ @50-60 Hz   |
| Power Consumption:     | 100 VA max   |
| Temperature Control:   | 4°C over ambient to 50°C   |
| Temperature Variation: | $\pm 0.5$ C across the plate @ 37°C (250 $\mu$ L per well with the plate sealed)   |