

Octet QK^e System

Enhanced Quantitation and Kinetics Performance with Biosensor Re-racking

Key Features

- Increased sensitivity and dynamic range for quantitation
- Excellent signal resolution for measuring protein and peptide kinetics
- Re-racking biosensors gives operational cost savings
- Two acquisition speed options to customize assay performance



The Octet QK^e is the newest addition to the Octet family of real-time, label-free biomolecular interaction analysis instruments. It is an enhanced performance version of the first-generation Octet QK instrument. Two acquisition rate settings and a higher-performance spectrometer combine to provide greater sensitivity and wider dynamic range for quantitation and kinetic analysis. In addition, biosensor re-racking provides enhanced flexibility and operational cost savings for running assays.

INCREASED SENSITIVITY AND DYNAMIC RANGE FOR QUANTITATION AND KINETICS

The Octet QK^e instrument contains the same high-performance spectrometer used in the Octet RED system. In addition, new Octet software version 6.3 installed on the Octet QK^e provides a High Sensitivity acquisition rate setting for both quantitation and kinetics assays, allowing measurement of lower ranges of concentrations and smaller molecular weight analytes than possible using the Octet QK.

The Standard acquisition rate of 0.6 Hz with 5 averages per data point (1 data point per 1.6 seconds) is the default setting on the Octet QK^e and equivalent to that on the Octet QK. The High Sensitivity acquisition rate of 0.3 Hz (1 data point per 3.3 seconds) allows the software to perform 40 averages per data point to reduce noise and enhance signal to noise ratios, and gives the Octet QK^e enhanced sensitivity for quantitation of proteins.

Kinetic analysis of proteins and peptides benefits from the Octet QK^e enhancements over the Octet QK in two ways:

- Lower molecular weight proteins and peptides can be detected and analyzed on the Octet QK^e.
- The binding data for proteins or peptides at different concentrations can be better resolved on the Octet QK^e, providing reliable measurement of kinetic constants.

In comparison, the Octet QK384 provides equivalent performance at greater throughput. The Octet RED and Octet RED384 provide the best performance among the Octet family of instruments for

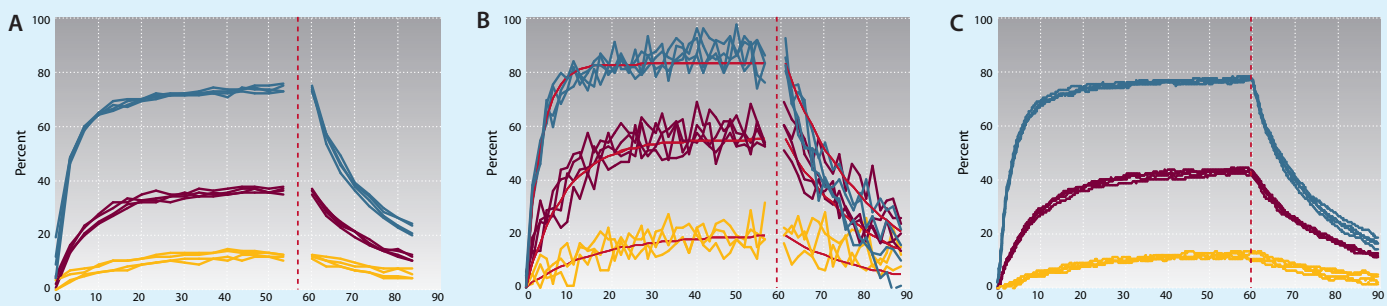


FIGURE 1: Comparison of the binding of insulin (5.8 kDa) to biotinylated anti-insulin antibody anchored on Super Streptavidin biosensors on Octet QK^e (1A), Octet QK (1B), and Octet RED (1C). The Octet QK^e data was obtained using the Low acquisition rate setting of 0.3 Hz and 40 averages. The Octet RED data was obtained using 5 Hz acquisition rate and 20 averages and the Octet QK data was obtained using a 0.6 Hz acquisition rate and 5 averages.

System	Octet QK	Octet QK ^e		Octet RED
Setting	0.6 Hz, 5 avg	0.3 Hz, 40 avg	0.6 Hz, 5 avg	5 Hz, 20 avg
k_{on} (1/Ms)	1.51E+05	1.37E+05	1.08E+05	1.03E+05
k_{off} (1/s)	7.48E-02	8.00E-02	7.25E-02	6.56E-02
K_D (M)	4.95E-07	5.82E-07	6.71E-07	6.39E-07
S/N @ [0.5 K_D]	4.7	30.8	14.3	29.1

TABLE 1: Comparison of performance of the Octet QK, Octet QK^e (at two different acquisition rates) and Octet RED for the insulin (5.8 kDa)-anti insulin interaction.

Octet QK^e System Specifications*

Sample and Analysis	
Detection Technology	Biolayer Interferometry (BLI)
Biosensor Type	Disposable, single-use fiber optic biosensors with optional reuse by regeneration and/or re-racking
Information Provided	<ul style="list-style-type: none"> Kinetic and affinity analysis (k_{obs}, k_a, k_d, K_D) Kinetic screening for k_a or k_d Binding specificity and cooperativity Concentration monitoring of real-time binding (no need for background subtraction)
Data Presentation	<ul style="list-style-type: none"> Plots displaying kinetic binding, equation fits, and residuals of fits Tabulated kinetic data and data charts
Sample Types	Proteins, antibodies, peptides, media containing serum, buffers containing DMSO, periplasmic fractions, untreated cell culture supernatants, and crude cell lysates
Sample Plate	Standard 96-well, black, flat bottom microplate
Sample Volume	<ul style="list-style-type: none"> 180–220 μL/well (96-well plate) Nondestructive testing, easily recovered
Orbital Flow Capacity	Static or 100–1500 rpm
Analysis Temperature Range	(Ambient + 4 °C) – 40 °C, 1 °C increments

*All specifications are subject to change without notice. For more information about ForteBio's Octet platform for label-free, real-time detection of biomolecular interactions, applications, and services, visit www.fortebio.com or contact us directly.

quantitation and kinetic analysis, with the broadest dynamic range, greatest sensitivity, ability to measure small molecule:protein binding and ability to measure fast binding interactions.

MAKING QUALITY ANALYSIS AFFORDABLE

The Octet QK^e system provides the ability to re-rack biosensors at the end of an experiment. Biosensor re-racking provides enhanced flexibility in loading ligands on biosensors and reduces operational costs when precious target reagents are loaded on biosensors. Combined with superior data quality, the Octet QK^e provides a value-added alternative to other label-free instruments for your assays.

Physical Specs

Dimensions 18.6 in (H) x 17 in (D) x 20.8 in (W)
47 cm (H) x 43 cm (D) x 53 cm (W)

Weight 54 lb (24.5 Kg)

Electrical Requirements

- Mains: AC 100–240 V, 5.0–2.0 A, 50/60 Hz, single phase
- Power consumption: 120W (240 peak)

Quantitation and Kinetics

Throughput Up to 8 assays in parallel; up to 96 assays per 96-well plate

Analysis Time per Sample

- hIgG quantitation in 2 minutes for 8 samples, \leq 32 minutes for 96 samples
- Real-time kinetic analysis experiments from 5 minutes to 4 hours

Baseline Noise \leq 3 pm (RMS) at High Sensitivity acquisition rate
 \leq 8 pm (RMS) at Standard acquisition rate

Quantitation Range for hIgG 1 μ g/mL to 700 μ g/mL at low rpm; LOD of 0.05 μ g/mL at 1000 rpm

Ordering Information

Part No.	UOM	Description
30-5046	System	System includes Octet QK ^e instrument, Octet software v6.3 or greater, desktop computer, 19" LCD monitor, accessory kit, and one-year warranty