DISCOVER

MOLECULAR INTERACTIONS

heliX®

Binding Kinetics
Conformational Changes

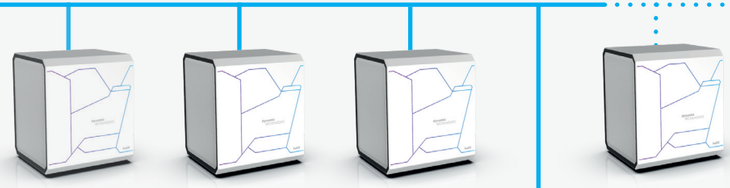
www.dynamic-biosensors.com

The **heliOS** network

Network of autonomous **heliX®** modules, simply plug-and-play.
Reliable and robust by built-in system redundancy for uninterrupted operation.

Combine as many **heliX®** modules as you require to **scale-up throughput** to your needs.

Highly-automated THROUGHPUT



High PERFORMANCE sensing

switchSENSE® static and dynamic measurement modes for the analysis of binding kinetics and molecular conformations.

fastest binding kinetics

heliX®
single unit

4 signals, real-time

4 single-photon counters for highest fluorescence sensitivity.
Data collection at 10 ms to resolve even the fastest kinetics in real-time.

Advanced microfluidics

Simplistic single-channel design, made from durable glass, withstanding highest flow rates and corrosive chemicals.
Disposable, maintenance-free.

Automatic chip loader

5 chips, automatically exchangeable and NFC-tagged for seamless traceability.

Autosampler

384 and 96 well plates.
Sample temperature 10 – 40°C, sample compartment 4 – 40°C.

Ease-of-Use

Powerful software

For efficient planning and analysis of binding and conformation experiments.

Intuitive for the novice and configurable for the expert analysis of big data.

Control and monitor **heliX®** modules from **anywhere**.

For further information visit **www.dynamic-biosensors.com/heliX**
Contact **info@dynamic-biosensors.com** to speak to our application team about methodologies or to arrange a demonstration.

dynamic BIOSENSORS

switchSENSE® – Comprehensive biophysical information, in one measurement

Binding Parameters
k_{ON}, k_{OFF}, K_D, avidity

DNA/RNA Binders & Enzymes
Transcription factors, helicases, polymerases (COVID-19), DNA repair, gene editing, …

Multi-specific Binders
Antibodies for cancer immuno-therapy,PROTACs, …

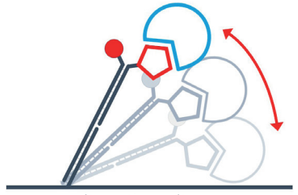
Conformational Changes in Proteins
Structure-activity-relationships

Kinetics on Cells
Real-time binding analysis on living cells

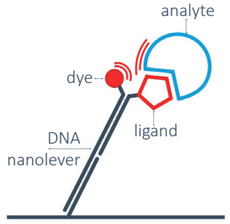
Multi-parameter analysis with switchSENSE®

Affinity, dose response	K_D, IC_{50}, fM sensitivity	**Conformational changes & protein diameter**	hydrodynamic friction change, folding/unfolding, agglomeration
Kinetics	k_{ON}, k_{OFF}	**Thermodynamics**	ΔH, ΔS, ΔG
Avidity, bispecifics	Two-color detection	**Nucleic and enzyme activity**	k_{CAT}, K_M, k_{EXO}

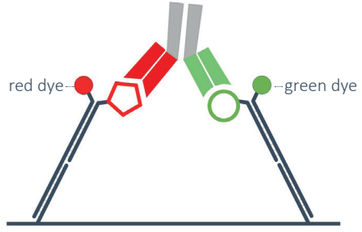
Multiple measurement modes



DYNAMIC mode
hydrodynamic friction



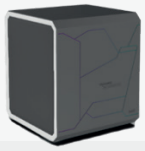
STATIC mode
fluorescence proximity sensing

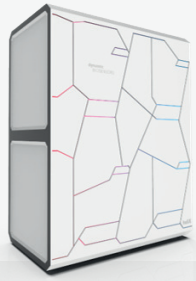


TWO-COLOR detection
fluorescence & friction sensing

dynamic BIOSENSORS

heliX® system comparison





	heliX	heliX⁺	Double-heliX	4-heliX Bundle
No. of chips, auto-exchangeable	1	5	10	20
No. of real-time signals	2	4	8	16
No. of well-plates / wells	1 / 96	1 / 384	2 / 768	4 / 1536
Fluorescence channels	One color	Two Colors		
Sampling rate	1 datapoint/s	100 datapoints/s		
Temperature	[1] $T_{const.}$ = 25°C or 37°C	[1] any constant temperature from 10° to 40°C [2] variable temperature, ramp speed up to 10°C/min		
Measurement modes	[1] Molecular Dynamics [2] Fluor. Proximity Sens.	[1] Molecular Dynamics (molecular friction) [2] Fluorescence Proximity Sensing (FPS) [3] Fluorescence resonance energy transfer (FRET)		
Kinetics	$k_a = 10^3 \ldots >10^7\ M^{-1}s^{-1}$ $k_d = 10^{-6} \ldots 0.2\ s^{-1}$ K_D = 0.1 pM – 1 mM	$k_a = 10^3 \ldots >10^8\ M^{-1}s^{-1}$ $k_d = 10^{-6} \ldots 30\ s^{-1}$ K_D = 50 fM – 1 mM		