

DISCOVER MOLECULAR INTERACTIONS

Kinetics – Affinity – Avidity
Conformational Changes
Thermodynamics

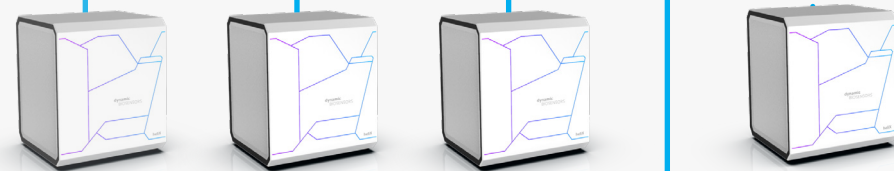
heliX[®]



The heliOS network

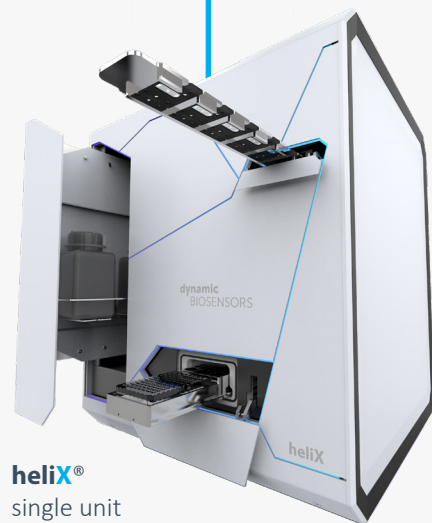
Network of autonomous heliX® modules, simply plug-and-play.

Reliable and robust by built-in system redundancy for uninterrupted operation.



High PERFORMANCE sensing

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



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 – 70°C,
sample compartment 4 – 40°C.

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

Highly-automated THROUGHPUT



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.

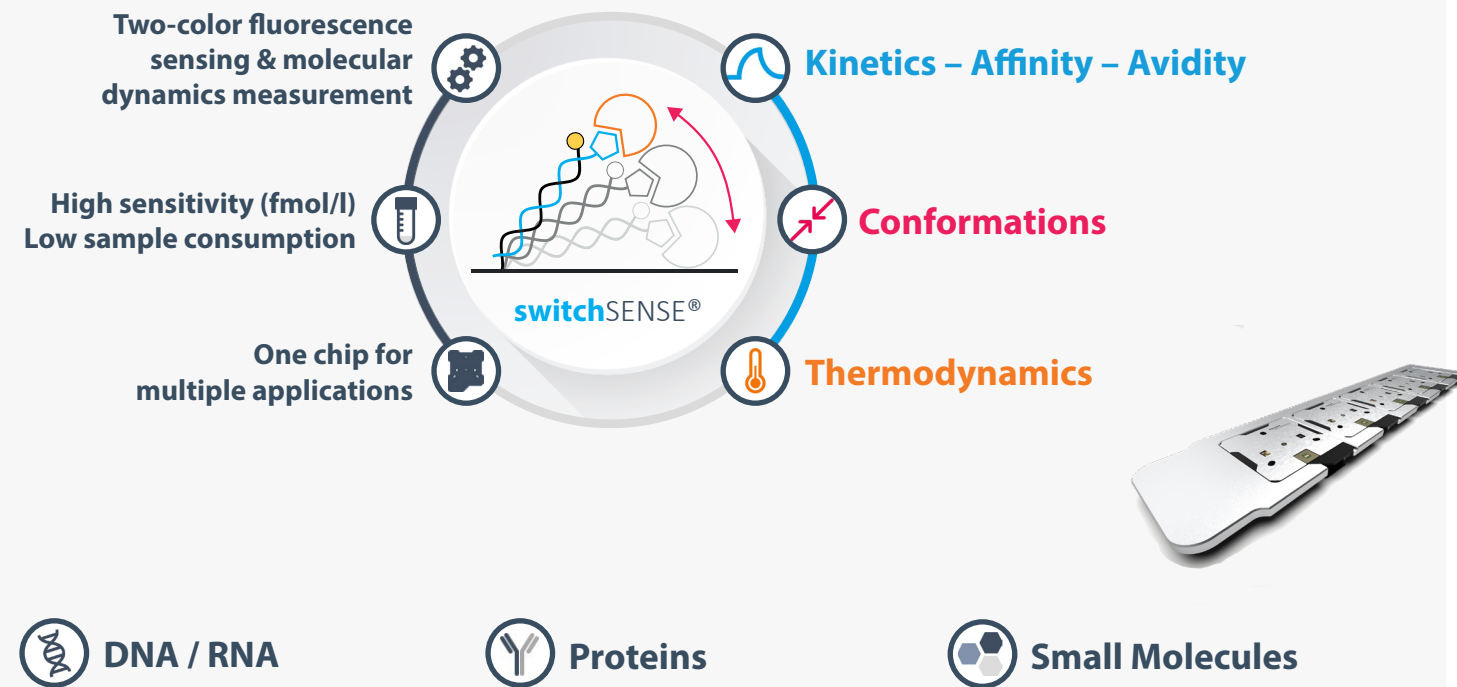


Control and monitor heliX® modules from **anywhere**.

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

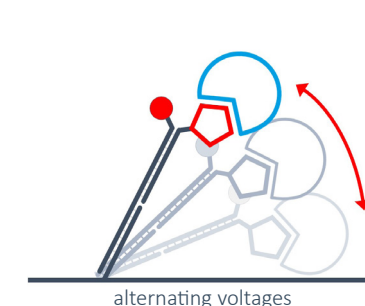
switchSENSE® – Comprehensive biophysical information, in one measurement



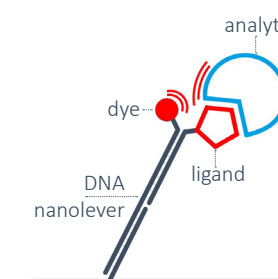
Multi-parameter analysis with switchSENSE®

Affinity, dose response	K_D , IC_{50} , fM sensitivity	Protein diameter	D_H , $\Delta D_H = 0.1$ nm
Kinetics	k_{ON} , k_{OFF}	Melting temperature	T_M
Avidity, bispecifics	Two-color detection	Thermodynamics	ΔH , ΔS , ΔG
Conformational changes	% friction change folding/unfolding agglomeration	Nucleic and enzyme activity	k_{CAT} , K_M , k_{EXO}

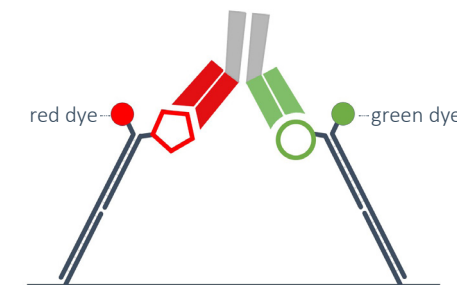
Multiple measurement modes



DYNAMIC mode
hydrodynamic friction



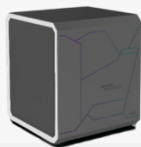
STATIC mode
fluorescence proximity
sensing



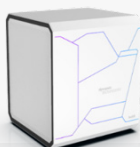
TWO-COLOR detection
fluorescence & friction sensing

dynamic
BIOSENSORS

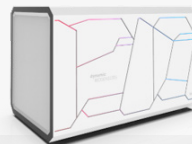
heliX[®] system comparison



heliX



heliX⁺



Double-heliX



4-heliX Bundle

	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
Real-time referencing	[1] same channel	[1] same channel	[1] same channel [2] different channels	
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] $T_{\text{const.}} = 25^{\circ}\text{C}$ or 37°C	[1] any constant temperature from 10° to 70°C [2] variable temperature, ramp speed up to $10^{\circ}\text{C}/\text{min}$, for T_{m} measurement		
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	$k_{\text{a}} = 10^3 \dots >10^7 \text{ M}^{-1}\text{s}^{-1}$ $k_{\text{d}} = 10^{-6} \dots 0.2 \text{ s}^{-1}$ $K_{\text{D}} = 0.1 \text{ pM} - 1 \text{ mM}$	$k_{\text{a}} = 10^3 \dots >10^8 \text{ M}^{-1}\text{s}^{-1}$ $k_{\text{d}} = 10^{-6} \dots 32 \text{ s}^{-1}$ $K_{\text{D}} = 50 \text{ fM} - 1 \text{ mM}$		