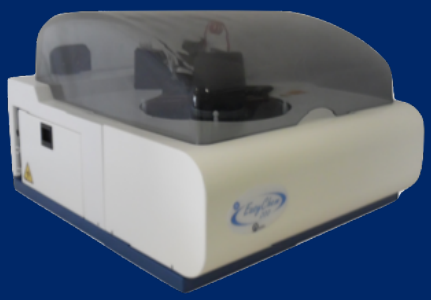
Technology Comparison



VS

Choose the technology that is best for you

The purpose of this piece is to clarify the differences between direct read and hybrid discrete analyzers.

Hybrid analyzers were the first generation of discrete analyzers and have been around since the 1980s.

However in the last 20+ years, most companies have standardized on the more innovative **direct read technology**.

The primary difference between these technologies is the location where the measurement is made.

In direct read systems, the measurement is made in the reaction cuvette. In hybrid discrete analyzers the measurement is made in a flow cell.

Both of these technologies offer many of the benefits of discrete analyzers. However there are meaningful differences between the technologies and it is important to know them before selecting the right one for your application.

Blue Sun Offers *Both*

If you are interested in multi-parameter low level analysis, **hybrid discrete analyzers** offer you flexibility and accuracy.

For all other standard applications, including EPA Waste Water and Drinking Water analysis, we advise **direct read discrete analyzers**.

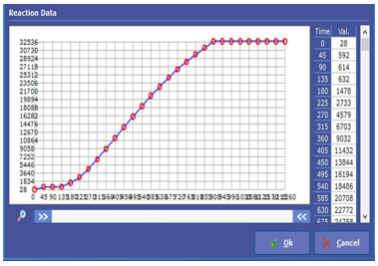
Advantages	EasyChem Jr	EasyChem 200	Thermo Gallery	Westco SC200	Blue Sun Seawater	Seal AQ300	Seal AQ400
Direct Read / Hybrid	DR	DR	DR	DR	Hybrid	Hybrid	Hybrid
Max Unattended Tests per Run	96	750	350	750	96	180	216
Multiple Chemistries in parallel							
No flow cell bottlenecking							
QC+ Wash Station							
Low Reagent Consumption							
Visible reaction kinetics							
True Sample Blanking							
Extended flow cell option							

Reaction Kinetics

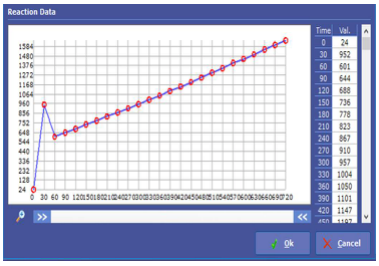
Seeing is understanding

Only direct read analyzers can take multiple measurements of the reaction as it occurs in the reaction cuvette.

This gives important information about the color change making it a valuable tool in optimizing methods and troubleshooting any issues.



Ideal color change



Problematic color change

Disposable vs Reusable Cuvettes

Is it worth it?

Most direct read and hybrid analyzers use disposable reaction cuvettes, which an impact on your ongoing consumable costs, especially for larger labs.

Disposable cuvettes need to be replaced after every test and there is also a cost for disposing of solid hazardous waste.

The **Blue Sun Scientific EasyChem 200** has a unique wash station that allows you to reuse reaction cuvettes while increasing throughput and reducing costs. (see DR3 for more info)

This model is highly suggested for labs performing more than 50 tests per day.

# of Reaction Cuvettes Used for 10,000 tests.	
Blue Sun EasyChem 200	**80**
Blue Sun EasyChem Jr	**10,000**
Blue Sun SeaWater	**10,000**
AMS SmartChem 200	**60**
Seal AQ300	**10,000**
Seal AQ400	**10,000**
Thermo Gallery	**10,000**

Flow Cell Bottle-Necking

The dark-side of hybrid analyzers

Hybrid analyzers are ideal for multi-parameter low level analysis because they can offer the extended detection path length previously only available in CFA analyzers.

However this advantage comes at a cost. Because all samples are read through the same flow cell, which must also be rinsed between samples, the throughput of this instrument becomes limited by the availability of the flow cell.

If sample blanking, spiking or dilution is necessary, the throughput of the analyzer can be cut in half or even quarters.

Preferred Technology Solution

Application	Direct Read	Hybrid
Drinking Water		
Ground Water		
Waste Water		
Sea Water		
Soil and Fertilizer		
Industrial		

Unattended Tests Per Run vs Walkaway Time

The True Automation Standard

Cut through marketing noise and compare discrete analyzers by their true measure of automation.

Slow instruments can have a long walk away time but only efficient instrument will give a high number of unattended tests per run.