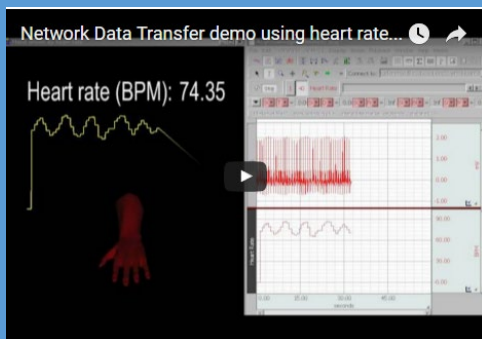


Key Functionality

Network Data Transfer

- *AcqKnowledge* licensed feature
- Allows data during acquisitions to be transferred to external applications through TCP or UDP connections.
- All types of channels may be streamed during acquisitions, including calculation channels.
 - Allows real-time signal processing to be designed and performed within the regular *AcqKnowledge* environment while performing other further data processing and display within your own application.

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BIOPAC Hardware API

- Software product (BHAPI)
- Allows for direct integration of hardware communications with your own applications.
- Allows for direct configuration of MP devices and control over data acquisitions.

Only one application may use the MP device at a time, so it is not possible to use both Network Data Transfer and BIOPAC Hardware API within the same application.

It is not possible to run *AcqKnowledge* and an application using the BIOPAC Hardware API at the same time.

It is not possible to run multiple applications using the BIOPAC Hardware API.

Network Data Transfer (NDT) vs Hardware API (BHAPI)

Consider the requirements of your application carefully before choosing which tool you use to interface with the data acquisition.

Function	BIOPAC Hardware API	Network Data Transfer
Compatible OS	Windows only	Windows and macOS
Configuring hardware	Direct access provided for sampling rate, triggering, and channels to be acquired.	Configuration must be contained within a graph template and cannot be directly modified.
Data delivery	Guaranteed. If interrupted, appropriate error codes are returned.	Not guaranteed. Client app must continually read data from data connections or data may be silently dropped. <i>AcqKnowledge</i> internal buffer holds 2 sec data.
Latency	Fast response times. Suitable for real-time applications.	Response time is not guaranteed and depends on multiple factors including calculation channel and network overhead. Suitable for slower moving signals or applications where accurate real-time data delivery is not critical.
Output control	Low-latency control over fixed analog output voltages and digital output.	Stimulators may be configured through graph templates to perform waveform output (MP160/150) or pulse generation starting with acquisition (MP36A-R). Provides control of constant analog output voltage and digital lines via XML-RPC, but latency is arbitrary, and changes must generally be ≤ 50 requests per second.
Calculation channels and signal processing	No signal processing or calculation algorithms provided; implement signal processing algorithms within your own application code.	Calculation channel data may be streamed; all calculation channel types available within <i>AcqKnowledge</i> are available.
Programming requirements	DLL is accessible from a variety of languages; if no language binding available, requires knowledge of how to map DLL calls to the chosen language.	Requires knowledge of network programming language in either TCP or UDP sockets. Requires an XML-RPC library and knowledge of how to use the library to write XML-RPC clients.
Supported MP hardware	MP160, MP150, MP36R, MP36A-R; unique version for MP36A and MP35.	MP160, MP150, MP36A-R, MP36R
Allows for redistributable applications	Yes, contact BIOPAC Systems, Inc. for licensing details.	No restrictions on your own application licensing or redistribution. However, users of your application will be required to purchase a full <i>AcqKnowledge</i> Development Edition license to use network data transfer infrastructure.
Multiple MP devices	No.	Requires multiple graphs and MP devices to be assigned to those graphs manually within the <i>AcqKnowledge</i> GUI, identical to the manual setup required for standalone <i>AcqKnowledge</i> multiple hardware operation. No automated support is available for configuring multiple hardware units.