

Below are several notes on DASYLab \geq 5.0 operation with instruNet using the 11-20-98 1.07 version of the DASYLab interface for instruNet (i.e. "Program Files \ DASYLab \ iNet_e.dll").

Block Size

DASYLab is a series of subroutines (icons) that process little segments of data that are BlockSize number of points long. A sequential scheduler tells each icon to execute and process these segments, and continuously telling the set of icons to execute. Each segment has a header with a timestamp and the actual data points. Typical Block Sizes are .5secs of data (e.g. all icons execute 2x per second). If Auto Select is selected, DASYLab typically gives you a block size of about 0.5 seconds, or 8192 points, whatever is smaller. Selecting Auto Select is the recommended option.

Low and High Speed Digitize Modes

There are 2 digitizing modes within DASYLab: Low Speed and High Speed, which are sometimes referred to as "Single Value" and "Waveform". High Speed involves digitizing at the Sample Rate and Block Size specified in the Experiment Options dialog. Low Speed involves sampling 1 point at the end of each Block. The instruNet analog Input Module icon runs High Speed. The Digital Input, Digital Output, and Parameter Output icons run in Low Speed mode (one can also access the i100 Ch25 digital input byte via the Input icon in high speed mode). The analog Output Module icon runs High Speed ("Waveform") or Low speed ("Single Value"), as selected in the module dialog box under "Output Mode". If you get an error #96 (buffer underflow), increase the # of blocks delay in the instruNet output icon. If high speed output causes a non-recoverable error, please make sure you have instruNet version \geq 1.4.1, available from www.instruNet.com/d.

Synchronizing Channels with Different Sample Rates and Block Sizes

The display cares a lot about the timestamp attached to the various input channels. Data from different sources might have different timestamps causing the Y vs Time display to produce a "synchronization" alert. The Chart Recorder display handles data with different timestamps significantly better than Y vs Time. To synchronize channels with different sample rates and block size, one should use the "Signal Adaption" icon with Operation set to "Full Interpolation". This is sometimes necessary before viewing.

Analog and Digital Output

If instruNet is digitizing from the voltage inputs at $<1\text{Ks/sec}$, then DASYLab can write to an output (digital or analog) at the end of every block. For example, if the block size is 64 and the sample rate is 100s/sec, then it will update the output every .64secs. If one wants the output and input rate to be the same, one must set the block size to 1. Combining inputs and outputs works well with $<100\text{s/sec/ch}$ rates and block sizes of 1.