

Model 5961-004 Data Resampler

Version 1.2

Features

Resamples one or more CATS or DATX input files

Infinitely selectable filter cutoff

Aliasing protected resampler

Ratio metric resampling

Selectable time segment

Selectable process filter length

Selectable channel mode

Easy channel selection from list file

Signal Decimation and Interpolation

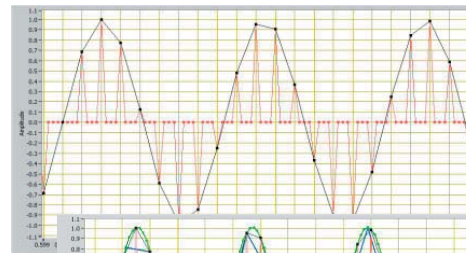
The Data Resampler software is a component of DSPCon's Piranha III, DataFlex-500 and DataFlex-1000 system suites. It is a comprehensive tool for decimating and interpolating any signal. It can be used to match sample rates between two files. Data is resampled from one or more DATX or CATS input files, and output in DATX format. (See page two for a brief discussion of CATS/DATX files.)

The Resampler's straightforward user interface makes it simple to select channels and processing parameters.

The core of the utility is a Finite Impulse Response (FIR) filter design program that matches the specifications of the upsample and downsample ratios to produce the maximum bandwidth signal without creating any aliased components. Upsampling is accomplished by inserting zero value between real points. Downsampling decimates the data down to the desired sample rate after the data has been filtered at an adequately attenuated frequency.

The software can also be used to reduce the bandwidth of the data (low pass), in order to remove high frequency noise for certain applications. The highly optimized filter engine can decimate data at extremely high speeds which makes processing with the Data Resampler an almost effortless operation.

Upsampling Example



The black line/points are the input and the red line/points are the data upsampled to a 4x sample rate by inserting 3 zero-values between each of the original points.

This example shows the effect of upsampling by 4, filtering at $.45 \times S_{orig} \times 4/7$, and downsampling by 7.

The black line/points are the input, the red line/points are the upsampling, the green lines are the filtering, and the blue lines are the downsampling.

Downsampling Example

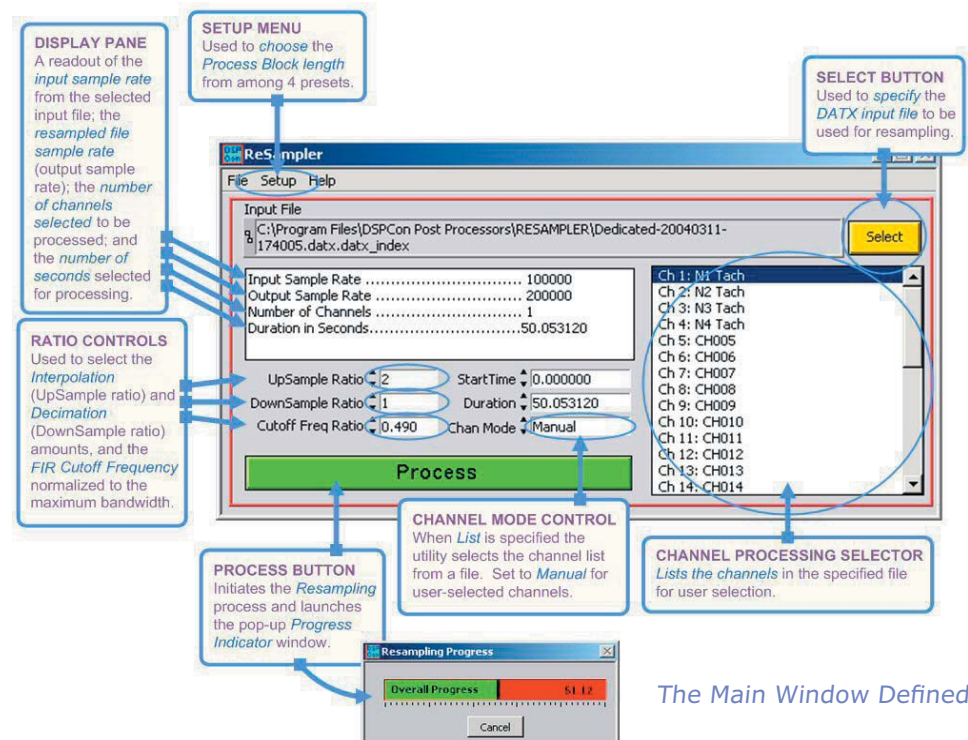
Ordering Information

Model 5961-004



Acquiring, Processing and Managing the World's Data.

www.dspcon.com



The Main Window Defined

A Note on CATS and DATX Open Standard Files

The CATS File Format

The intent of the CATS standard file is to provide a format for the storage of experimental data that is self-documenting and efficient from both a storage and an access standpoint. It has the following features:

Each file contains the data from one channel.

Each file is made up of two principal sections:

THE HEADER – is a keyword-based, ASCII table that contains the “pedigree” of the data set. Several hundred key words have been defined, but basic analysis requires a relatively small set.

THE DATA – is stored in a format described in the header. Normally, time histories are stored in 16-bit binary form (raw A/D counts). Analysis results are normally stored in ASCII form to allow ready access by a number of programs.

The CATS INDEX FILE links the individual files into a set.

Keywords, and their values, can be arranged in any order in the header. More than 150 keywords that describe test conditions, acquisition variables, and analysis parameters have been defined.

The DATX File Format

DSPCon Data Acquisition Systems write acquired data to files with a special format known as “DATX”.

The DATX file format is designed to store recorded binary data and all additional information needed to interpret recorded data in a single file. This additional information is placed in the beginning of the file and designated as the file header. The file header is a list of keywords with their values.

The DATX file format is a multi-channel data storage file format. Data recorded from multiple sources is stored in a single file. The DATX file header is divided into multiple sections – one section per channel. Each of the file header sections contains same set of the keywords with values that correspond to the channel.

For detailed information on the CATS and DATX file formats, please visit the Technical Library section of our website, www.dspcon.com.



Acquiring, Processing and Managing the World's Data.