

# DEWE-Ulyssix Ground Station Solution

Utilizes:

TarsusHS-PCI Hardware  
DEWESoft Software Suite  
Dewetron Integrated Computer

PCM  
RF  
FM  
Data Link  
Analyzers

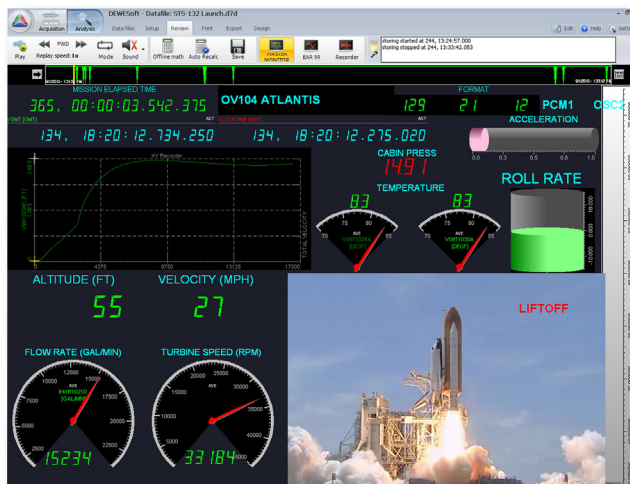
Custom  
Telemetry  
Solutions

The next generation Telemetry Ground Station requires top of the line hardware for real time Digital Signal Processing, combined with user friendly, reliable software to process/display/record critical mission data. Ulyssix Technologies and DEWESoft have come together to provide a total solution to the telemetry market.

This package can be scaled from a single channel battery powered computer, up to a state-of-the-art Launch Control Center for the most advanced ranges. This solution can process/display/record time correlated PCM data, RF Receiver, Analog data, GPS, Video and much more.

Utilizing Ethernet connections, data can be transferred between any number of hardware systems with the ability to set-up and control the hardware real time.

The Ethernet connection allows for data real time data transmission to any number of view client computers. Within a single package, users can process multiple telemetry streams from RF to bits while displaying & recording the decommutated data in visually stunning displays.

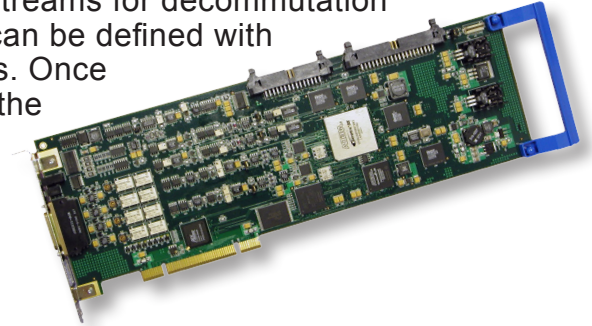


Application  
Note

## Data Processing

The DEWE-Ulyssix Ground Station solution is focused on accurate and efficient data acquisition. With the most advanced FPGA algorithms, the TarsusHS-PCI-01 card performs reliable bit determination and clock recovery, while time stamping the PCM stream with IRIG time every minor frame.

DEWESoft performs real time decommutation on the PCM stream and is capable of extracting embedded PCM streams for decommutation in the software. Individual parameters can be defined with easy to interpret channel setup screens. Once the parameter is defined as a channel the true power of the software can be unleashed.

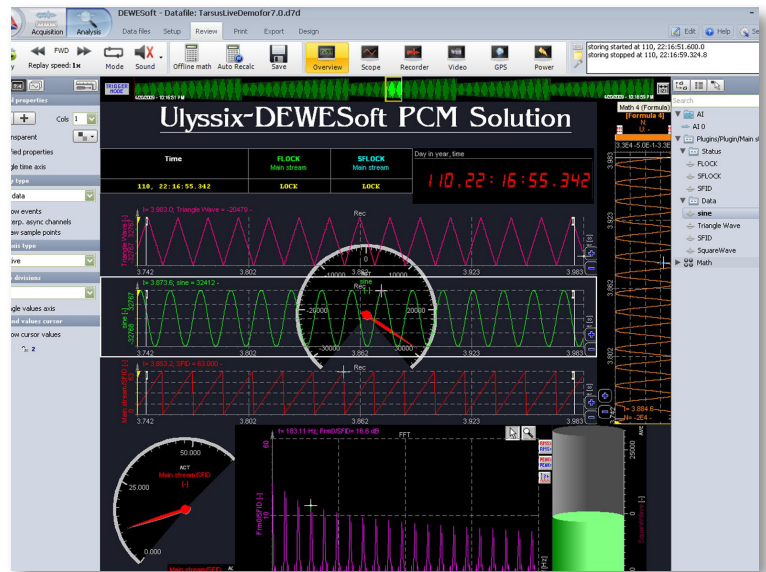


## Advanced Processing

Each sample from a Decom parameter is given an individual time stamp to keep all data within DEWESoft time correlated. Any parameter then has the ability to have independent math functions performed on the data real time for the user. Math functions range from simple engineering scaler values to 5th order polynomial math, derived parameters, if-then-else statements, FFT/FIR filters and many more.

All data is then available for display in the Measure Mode section of the software. Users are able to create custom independent displays for every mission using drag and drop widgets. Screens can be filled with strip charts, digital meters, FFT displays, video screens and many more. All data is time correlated for display across multiple screens.

Displays can be created during the mission **without** software recompiling interrupting the data flow.



## Data Distribution

Every data channel within DEWESoft can then be sent via Ethernet anywhere on a network to view client stations. These view client stations have the ability to watch time stamped data real time on custom built screens by the user **without** hardware.

This gives the ability to have numerous view clients watching independent data fed from one central computer or from multiple server computers. View client computers can store the data they receive directly to their local hard drive for immediate analysis.

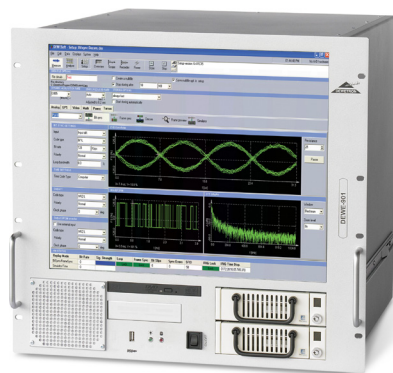
The distribution is done using no cost software at the view clients. All a system needs is to have the DEWE Net option installed on the measurement unit.

## Data Storage

The DEWE-Ulyssix solution gives the user the ability to store their data in a magnitude of ways to meet any mission requirement. The frame synced data can be stored in two ways digitally to the hard drive of the measurement unit.

The first way is to store the data in a Tarsus Archive Data file or .tad file which is a raw binary image file. This data has a 96 bit header inserted in front of every minor frame to time stamp the PCM data. An upgrade is available to store the raw frame data in an IRIG 106 Chapter 10 data format. Both the .tad and the Chapter 10 files are stored in such a form that they can later be replayed out of the Archive Simulator on the TarsusHS-PCI-01 at any code type or bit rate.

In addition DEWESoft will allow the user to store what is called a .d7d file simultaneously. This data file will store any data channel that is seen in the measure mode of DEWESoft. As long as the time stamped parameter (Analog, GPS, PCM, Video, etc.) is used in the measure mode it will be stored in the .d7d file for post analysis.



Dewetron 908  
Ground Station Computer with  
integrated BNC Rear Panel



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## Post Analysis

Once the .d7d file is created the user can take that data into Analysis Mode on any machine, no hardware required. Within Analysis Mode the user can use the stored displays or create new ones to analyze the data bit by bit. New to DEWESoft 7.0, users can perform offline math giving the ability to go back and do any math function available in DEWESoft in Analysis Mode without hardware.

Users have the ability to watch the data straight through the mission. Or they can pause, rewind and zoom in on individual data points of interest. With Analysis Mode users are able to sift through their data during the mission with a multi-file function or seconds after storage has been completed. Data can then be sent to a laser printer or exported to Matlab, Excel, Flexpro, Custom, etc. data files for the user.

Specifications subject to change without notice.