

# V5 System 2000 Calibration Files

\*.CLB—Box Calibration    \*.CLC—Sensor Calibration

The V5 System 2000 MT equipment has a built-in function for self-calibration. The instrument generates a square wave calibration signal and processes the response data at the odd harmonics of the fundamental frequency. This measures the response of filters and overall gain of the internal circuitry. The output data is saved in binary files with named with the Serial Number of the instrument or sensor that is under test. The calibration response is saved with file extension of CLB for MTU devices and CLC for sensors.

The file format is proprietary and *not* straightforward. Several types of data are saved, for AC and DC coupling, different low-pass filter settings, anti-alias filter settings and gain ranging.

## Utility Programs

Phoenix provides several utilities for viewing the calibration data. All these utility programs can be found on the original Phoenix EMTsw3113xx software CD provided with the System 2000 equipment.

### Convert Raw Calibration Data to ASCII: PrintCAL

The utility program PrintCAL.exe will read the \*.CLB or \*.CLC file and convert the raw calibration data to an ASCII file \*.TXT. The documentation for the syntax and output file description is in the text file C:\EMT-SW\EMT-DOC\PrintCal.txt.

### Display Calibration Data Graphically: SSMT2000, View Calibration function.

The View Calibration function in the program SSMT2000.exe will graphically display the data for \*.CLB and \*.CLC files. There is also an option to view the calibration data and export it to an ASCII file of comma-separated values (\*.CSV), which can be opened in any spreadsheet or word-processing program.

**Discontinuities in the Graphical Display** (SSMT 2000, View Calibrations):  
The amplitude curve in the graphical display of CLB files includes two or three sharp discontinuities. With current firmware, this appearance is normal. The digital response is *not* removed completely around the anti-aliasing filter at the beginning of each level, or frequency band. These residual responses cause the uplift in the amplitude response for the box calibration. The true response should be flat between one level and the next. Phoenix is working on correcting the display for future firmware. These discontinuities only affect the graphical display. The correct response (as would be output by SysCAL) is used by TStoFT.exe during data processing.

### Generate a File of System Response Values at Given Frequencies: SysCAL

The utility program SYSCAL.exe takes as input a TBL file (to get the gain and filter settings used during a particular acquisition), the corresponding \*.CLB and \*.CLC files, and an input parameter file (\*.PFC) containing a list of frequencies. The output is an ASCII file (\*.CTS) containing amplitude and phase response at the requested frequencies. This data file can be used for processing the time series data in the frequency domain. The manual is the file SysCal\_ManualVer5.pdf.