Advanced Measurement Solutions

LTM2214 – Software tools

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Advanced Measurement Solutions offers a complete software tools suite which greatly enhances the flexibility of the LTM2214 line of sight single beam laser (LOS-SBL) torque metering system. All the utilities of the suite are downloadable from our web site.

Four software utilities are available:

- LTM2214-RCU Remote control utility (freeware)
- LTM2214-TDM Time domain analysis utility (freeware)
- LTM2214-FDM Time and Frequency domain analysis utility (freeware demo)
- LTM2214-LTA Log Trend analysis utility (freeware demo)

LTM2214-RCU Remote control utility

The LTM2214-RCU is a freeware software tool running under Windows (XP, Vista, NT) which connects to LTM2214 torque meter by means of its two serial communication ports using a built in proprietary protocol.
Using this software tool the LTM2214 torque meter can be remotely controlled by a standard PC, can be integrated in a machinery automation system, or used in a remote diagnostic system controlled via a satellite link (e.g. in shipborne installations).
Three operating modes are available: log mode, console mode and configuration mode.

In log mode raw data strings received from the torque meter are displayed on the screen and sampled data can be captured by the utility (Receive File function).

Console Mode
The Console mode is the normal operating mode. It provides a user friendly interface as the display layout is very similar to LTM2214 torque meter front panel.

Additional features of this operating mode are:

- Control buttons (UP, DOWN, OK, MENU, ON/OFF) corresponding to the LTM2214 keypad ones
- Real time display of all measured data
- Event window (displays received event messages)
- Events filtering (to prevent displaying, in the event window, datagrams and alarm messages)
- Warnings and Alarms display in the dedicated alarms windows
- End of Cycle (EOC) signalling (communication active)
- SD card activity signalling
- Connection management
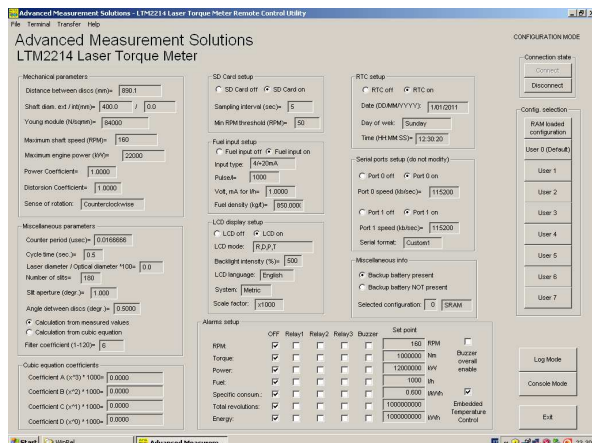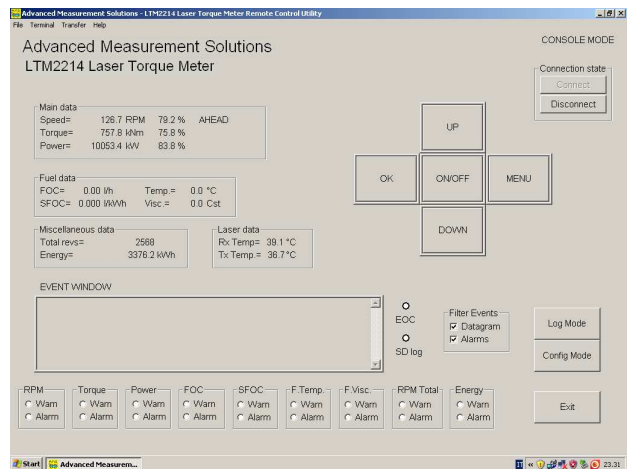
Configuration Mode
The Configuration mode is used to display the details of the configuration of LTM2214 hardware.
All the parameters of each user configuration slot can be displayed.
Displayed parameters are graphically grouped as per LTM2214 torque meter menus.
The meaning of the various data fields is explained in LTM2214 user and quick reference manuals.
In configuration mode it is only possible to display parameters.
Parameters can be modified in console or log mode.

LTM2214-TDM Time domain analysis utility

The LTM2214-TDM is a freeware software tool running under Windows (XP, Vista, NT) for postprocessing of vibrotorsional sampled data in the time domain. All its features are included in the LTM2214-FDM software tool.

LTM2214-FDM Time and Frequency domain analysis utility

The LTM2214-FDM is a cost effective software tool running under Windows (XP, Vista, NT) for postprocessing of the vibrotorsional sampled data in the time and frequency domains (see also the user manual downloadable from our web site).
The vibrotorsional samplings carried out by the LTM2214 can last for more than 20 minutes and permit to analyze the dynamic behaviour of the system with a resolution of few milliseconds.
The demo version, downloadable from our web site, has all the features of LTM2214-TDM utility. Its only limitation is that it plots a demo FFT not related to the input file. So, in case only the time domain features are required, the user has can use either LTM2214-TDM or LTM2214-FDM utility.

The LTM2214-FDM utility permits to load a vibrotorsional sampling (.vbt), an intermediate time domain output file (.tdm) or a frequency domain file (.fdm). The results of the processing is stored in a time domain output text file (.tdm) and in a frequency domain one (.fdm).

In time domain mode the utility plots the graphs of RPM, torque and power.

In this mode various options are available such as:

- Mechanical system parameters display (in a dedicated dialog window)
- Filtering parameters selection from dialog window
- Graph display selection (1 or 3 graphs) from dialog window
- Two X axis markers (with delta marker) and display of all the data of the selected sample
- One Y axis marker for each plotted graph (with display of the measured value in the side panel)
- Maximum and minimum calculation for each plotted graph (in the side panel)
- Adjustable scaling factor for each plotted graph (in the side panel)
- Plot autoscale
- X axis scroll
- X axis zoom between marker 1 and marker 2
- Automatic recalculation
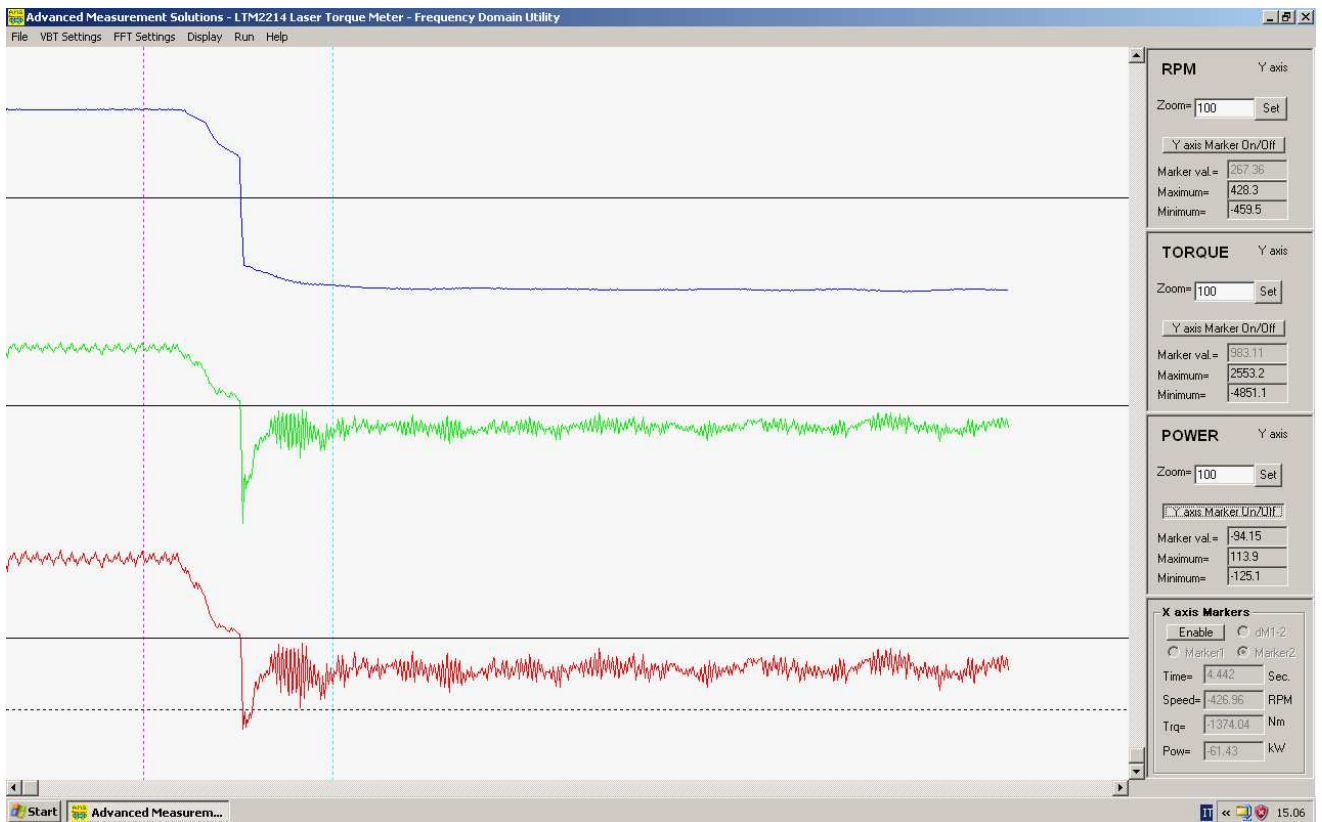
Time domain display

In frequency domain mode the utility plots the FFT graph of the input selected by the user.

In this mode various options are available such as:

- All the options already present in time domain mode
- FFT filtering window selection (flat top, hamming, blackman)
- Graph display selection (raw data, filtered RPM, unfiltered RPM, torque, power)
- Two X axis markers (with delta marker) with all spectral line data
- Two Y axis marker (with delta marker) with amplitude and dB indication
- Total energy, DC value and floor level calculation
- FFT odd and even symmetry errors calculation
- FFT equivalent sampling frequency calculation
- Maximum samples available calculation
- Spectral lines display
- Display of armonics (analytic calculation)
- Display of peaks (heuristic calculation)
- DC and floor cancellation
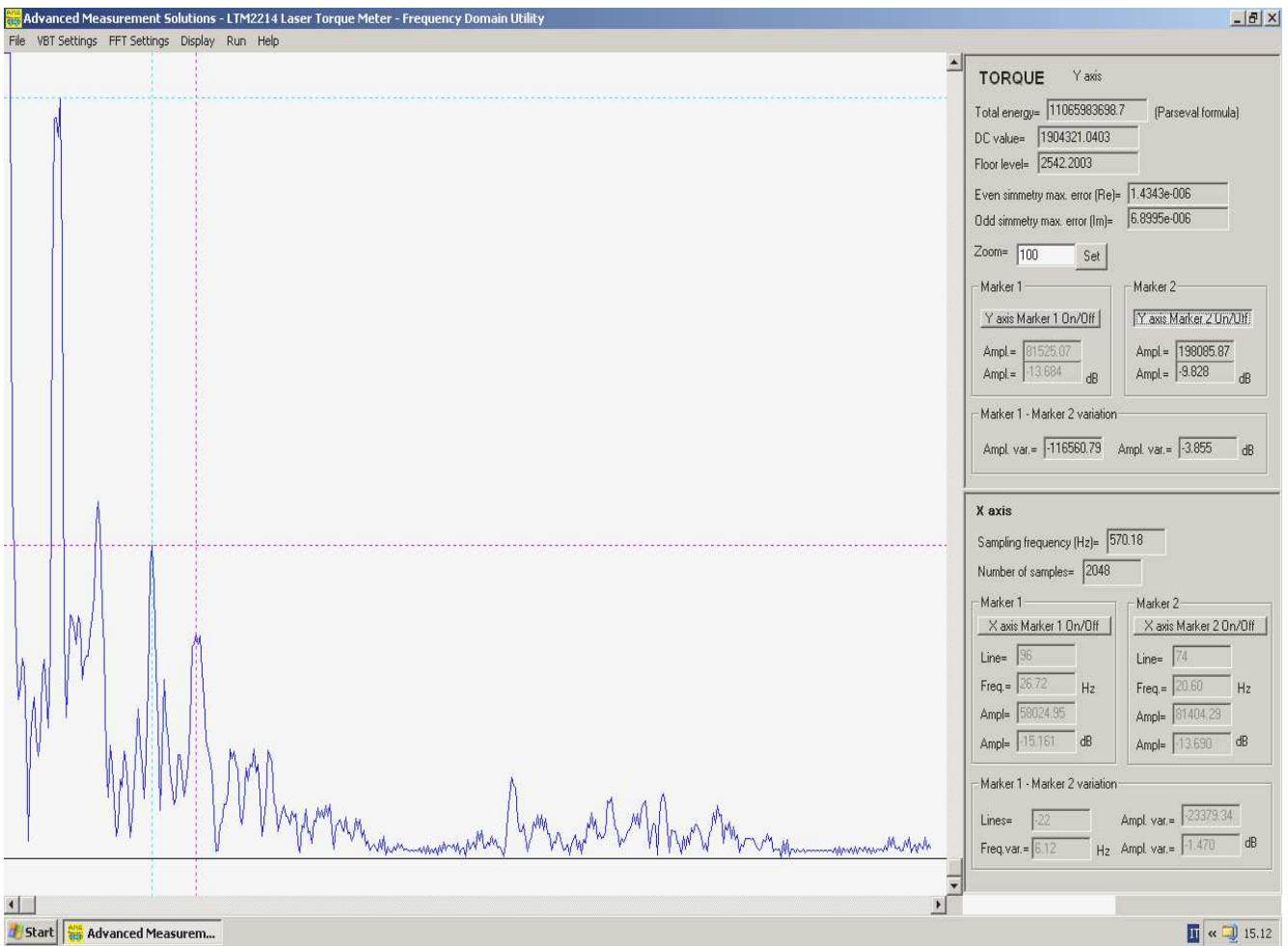
Frequency domain display

Warnings and alarms are issued in case the fluctuation of sampling frequency (RPM related) exceeds the allowable limit.
At the end of the processing bad samples statistic is shown.

Output text files (.tdm and .fdm) can be opened with a spreadsheet in order to allow the user to manipulate processed data.

LTM2214-LTA Log Trend analysis utility

The LTM2214-LTA is a cost effective software tool running under Windows (XP, Vista, NT) for the trend analysis of the log files generated by the LTM2214 torque meter or by the LTM2214_RCU utility (see also the user manual downloadable from our web site). The log files (.log) are stored by the LTM2214 on the SD card or, for time limited samplings, can be generated by the remote control utility LTM2214-RCU using "Receive File" function.
The LTM2214-LTA utility, downloadable from our web site, can be used in demo mode to display only the first 256 samples of the log file, while the following samples are ignored. All the other features of the utility are fully available.

In registered mode more than 8 milion samples for each trend can be loaded and displayed (which corresponds to more than 97 working days at a sampling rate of one sample per second, or to more than 388 days at the more usual a sampling rate of one sample each four seconds).
A custom version of the LTM2214-LTA utility with an increased trending capability is available upon request, but it is not normally supplied as it requires a PC with a larger system memory. This may cause malfunctioning in PCs with limited performance.

The utility plots the graphs of the trends of RPM, torque, power, instant fuel oil consumption (FOC) and specific fuel consumption (SFOC).

Various options are available such as:

- Trend display selection (1, 3 or 5 trends) from dialog window
- Two X axis markers (with delta marker) and display of all the data of the selected sample
- One Y axis marker for each plotted graph (with display of the measured value in the side panel)
- Maximum and minimum calculation for each plotted graph (in the side panel)
- Adjustable scaling factor for each plotted graph (in the side panel)
- Plot autoscale
- X axis scroll
- X axis zoom between marker 1 and marker 2
- Automatic recalculation
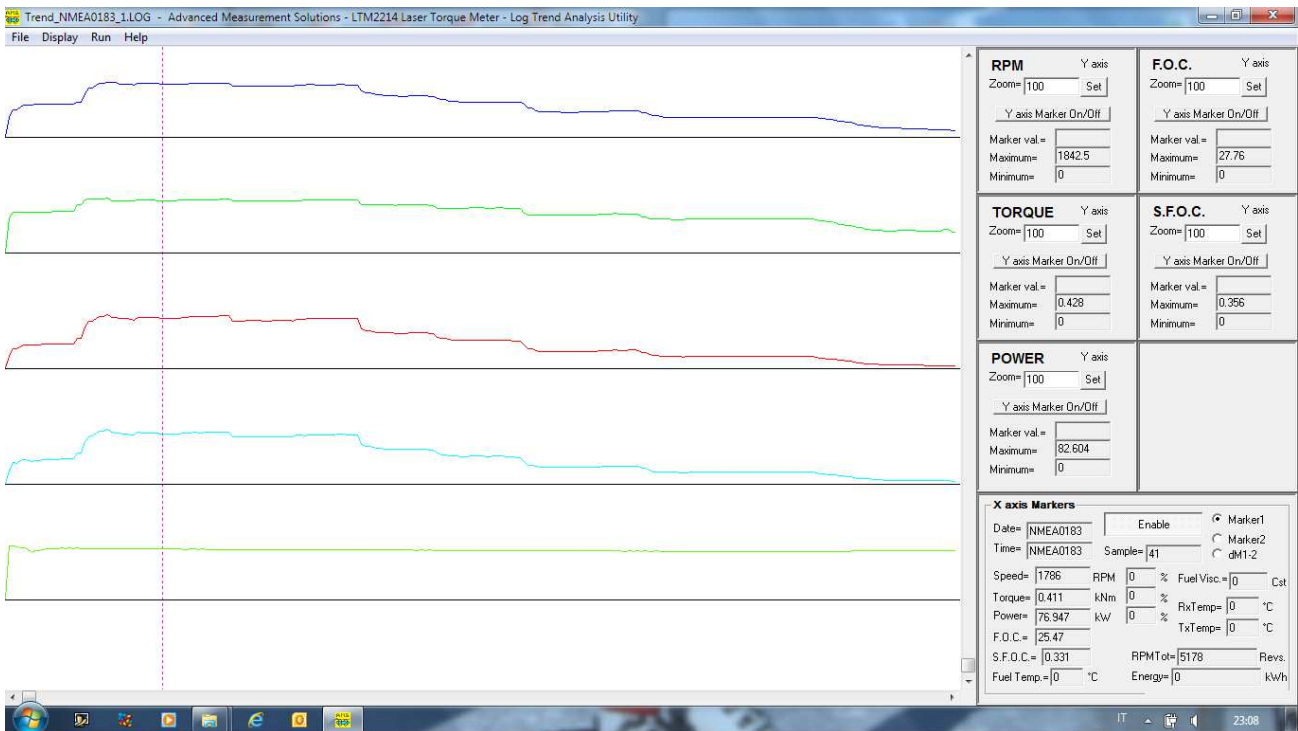
Five trends display

At the end of log file loading, the error static dialog is displayed to help the user to determine the reliability of the log file.
Log files (.log) are text files and thus can be opened with a spreadsheet in order to allow the user to manipulate stored data.

Agent:

Please visit our web site for more detailed information on all our products at: www.AdvancedMeasurementSolutions.com
or contact us at: info@AdvancedMeasurementSolutions.com

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