



Power Fault Recording / Power Network Analysis Application Example

Customer: Automotive (leading manufacturer)

The customer has several production plants for their vehicles around the world. The power quality at the feeding points from the public grid and important substations within their own grid are really different and depends strongly on the local conditions. There are often outages of devices or even whole production lines. They want to monitor the power quality of all their production sites round the globe with the same measurement equipment (hardware and software). An automatic Report generation with a certain time period according to the different regional standards (especially EN50160) should make it easier to check if the power quality at the connection points is within the limits.

For some analysis, they also bought mobile measurement instruments. They should be portable and with a rugged design, as well as easy to use. Every electrician should be able to work with the devices without training. With that device they want to do power quality analysis, harmonic emission analysis, and energy consumption measurement with load profile recording at different places etc.

They also ordered measurement devices for very detailed analysis with highest accuracy. They want to measure the input and output parameters of motors and inverters synchronous for efficiency estimation.

Challenges and Requirements

Stationary Measurement Devices

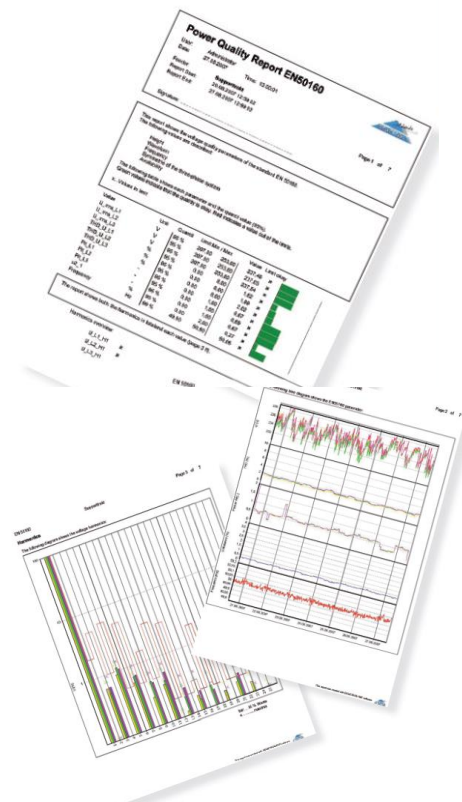
- Report Generation according to EN50160
- Transient and Harmonics Recording
- DI signal for status of devices (e.g. filters, switches)
- Database Storing

Mobile Measurement Device 1

- Analysis of EMC according to IEC 61000-3-2
- Power Quality Analysis
- Mobile and Rugged Housing
- User-friendly Interface
- Battery Pack

Mobile Measurement Device 2

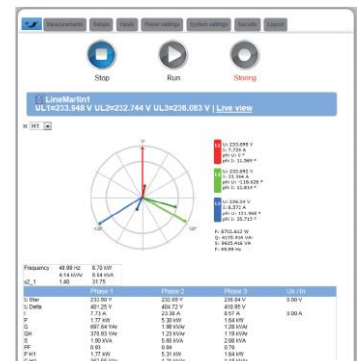
- Detailed Measurement of Inverters/Motors/Devices etc. (switching operations, voltage pulses, transients, etc.)
- Amplifiers with High Bandwidth capability; fully-isolated
- Sampling Rate up to 2 MS/s
- Efficiency Measurement of different Electrical Devices





Software:

- Marlin (PFR) – Stationary Devices
- Dewesoft (PMT) – Mobile Devices
- PMT4 for Power Quality Evaluation and Transient Evaluation



Hardware:

DEWE-820 and 30-16 PFR for Power Fault Recording

- 4 x 3 Voltage Inputs
- 4 x 3 Current Inputs
- 5 Digital Inputs for Status Signals



DEWE-571 for Mobile Power Quality Analysis

- 4 x Voltage Inputs
- 4 x Current Inputs
- 4 x Rogowsky-coils
- Battery-Pack



DEWE-5000 for Special Analysis (Power Measurement)

- 16 Channels Total
- 8 x Voltages (HSI-HV modules)
- 8 x Currents (HSI-LV modules)
- 4x Zero-flux Current Transducers
- 4x Clamp 150-DC

