ALPES TECHNOLOGIES

Supervision and analyse of the electrical network

EN50160 & POWER QUALITY

- **Controls the quality of the network following EN50160 and CEI 61000-3-6/7**
- **Complies to the CEI 61000-4-30 class A Standard !**
- **Records voltage, current, power, harmonics, inter harmonics, flicker, symetrical components, energy, signaling voltage**
- **Records the Dips, Swells and Interruptions**
- **Automatically prints conformity reports**
- **Sends email and SMS on alarm**
- **Synchronizes on GPS or pulses**

ALPES TECHNOLOGIES,
YOUR ELECTRICAL NETWORK UNDER CONTROL !

The full system for supervision and analysis of the Network !!!

*T*he Quality improvement in the supply of the electricity is an essential component of the world economy.

*T*he electrical Networks are disturbed by many electrical phenomena which can be characterized by various measurable parameters.

*T*his characterization requires a permanent measurement and supervision of all the significant electric parameters. This has to be done following the related Standards (EN50160, CEI 61000-4-7, EN61000-4-30,…).

*T*hanks to the ***ALPES TECHNOLOGIES supervision and analysis system***, it is possible to answer to the essential questions such as:

- *Wat was the cause of this electric phenomenon?*
- *Who is responsible for this electric problem?*
- *How can I fix this problem ?*

*T*he ***ALPES TECHNOLOGIES supervision and analysis system*** is made up of a complete range of ***ALPTEC*** Network analysers connected to a ***WINALP*** software for the collection and the analysis of the data.

*I*n order to dispatch the needed information on the Quality of an electrical Network for a certain time or concerning a power supply failure, the **ALPES TECHNOLOGIES supervision and analysis system** allows to print / display pre-defined reports.

*T*he **ALPES TECHNOLOGIES supervision system** takes care of the supervision of the evolution of the power consumption and the frame decoding of the signalling voltage.

*T*he **ALPTEC Network analysers** are designed to communicate via modem, Gsm modem, Ethernet, USB, RS485 and RS232. The analysers are able to immediately send an SMS and an email giving the characteristics of the failure. This allows the user to immediately act on the cause of the power supply failure.

*T*he **WINALP** Software makes it possible to automatically download the thousands of measurements recorded from the various Network analysers. The information is then available in a database for one or more users. It is possible to analyse the results, to compare and to dispatch it. It offers a panel of tools from the global Power Quality to the fine analysis of a specific problem.

*C*onnected on a corporate network, the embedded Web site of the **ALPTEC Network analysers** gives all information on the electric parameters and the Quality without the need for an dedicated software.

*T*he ALPTEC Network analysers simultaneously allow a real time monitoring of all the electric parameters such as:

▶ **Dips, swells and interruptions**

▶ **RMS values of the voltage and the current**

▶ **The 52 harmonics and inter-harmonics as well as the harmonic distortion**

▶ **Imbalance and symmetrical components (positive, negative and zero sequences)**

▶ **The Flicker Pst and Plt**

▶ **The Power**
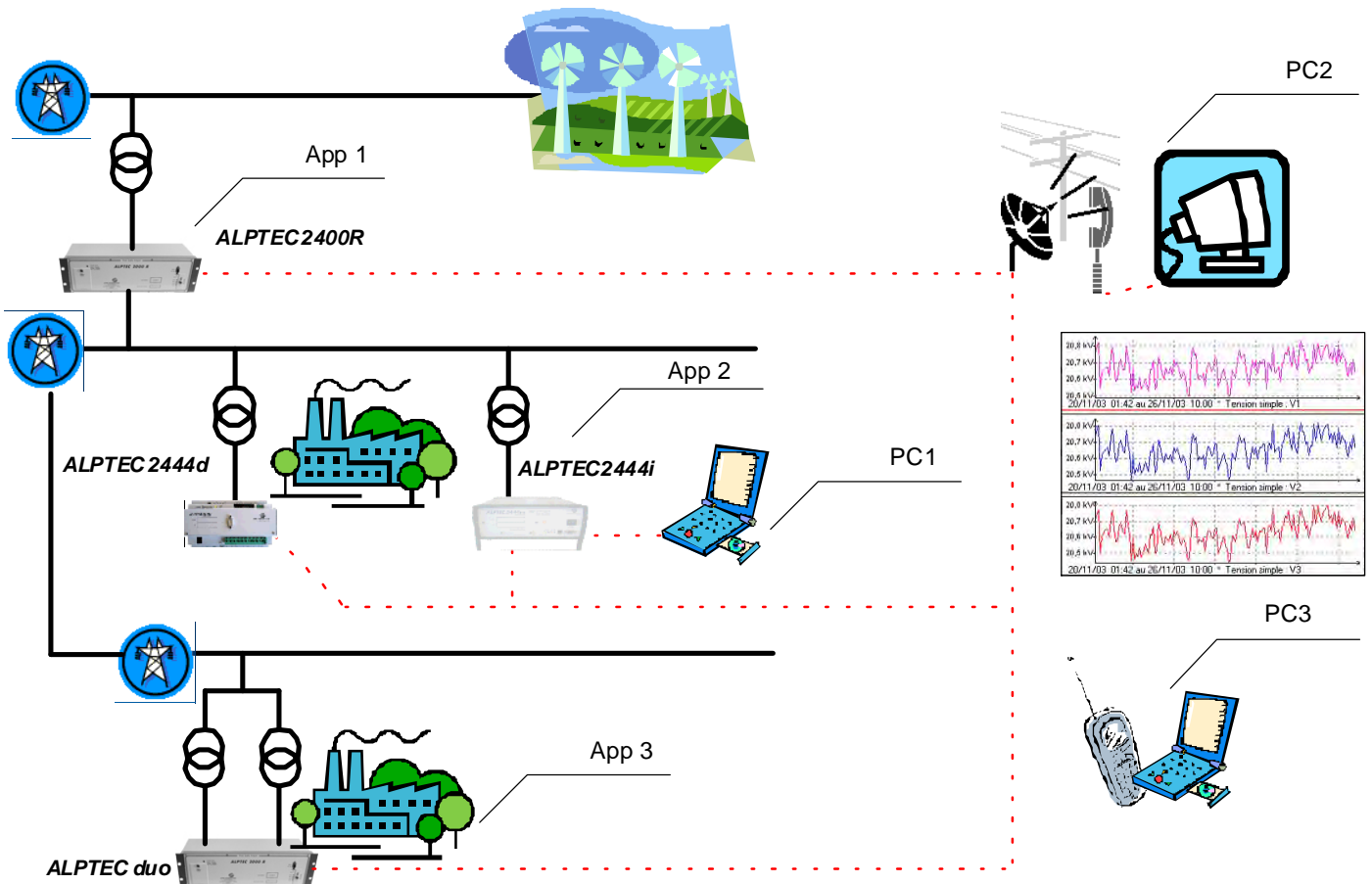
▶ **The Power factor, tangent phi and peak factor**

▶ **The Energy**
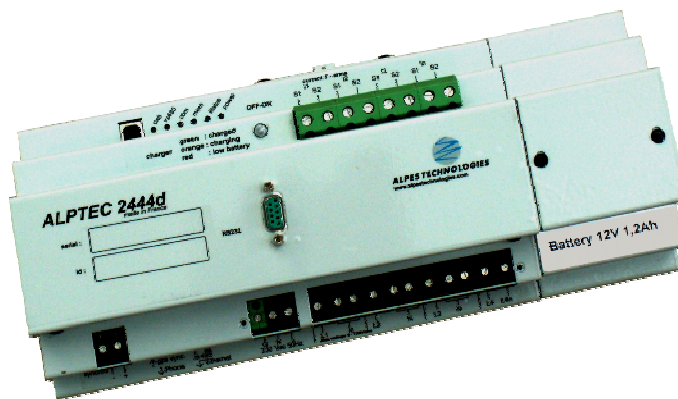
The following diagram is an example of a network of analysers installed as well in the electrical substations as in the consumer locations. Of course several networks can be supervised by only one Server PC.

Network of ALPTEC analysers

APP1 : Analyse of the Power Quality of the electricity provided by the Production plant.

**APP2** : Analyse of the Power Quality of the electricity provided by the Transportation Network.

APP3 : Analyse of the Power Quality of the electricity provided by the Distribution Network to the customer.

Computer network: Multi level treatment

PC1 : Portable PC for punctual analyse, USB connection.

PC2 : Desktop PC for remote statistical analyse of the Power Quality, modem or Ethernet connection.

PC3 : Portable PC for remote analyse of the Power Quality and power supply failures, GSM connection.
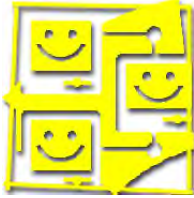
ALPTEC 2400 Network Analysers
The choice

2400d, DIN Rail, simplicity and effectiveness

A lot of integratable options

Small and light, this device is made for measurements in electrical cabinet. All the options are integratable in the device avoiding any external connection.

- 2444d : 4 inputs for voltage measurement and 4 inputs for current measurement, with DC insulation.
- 2440d Only 4 inputs for voltage measurement.
- Input terminal blocks with screws.
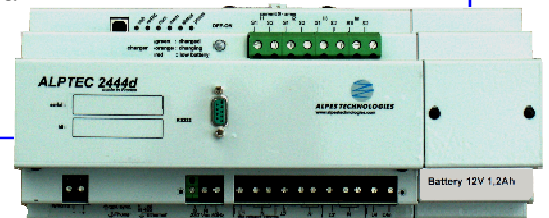
A lot of integratable options

- All the options are integratable in the devices avoiding any external handling.
- Standard : RS232 and USB.
- Standard : GPS and pulse synchro.
- Ethernet and embedded Web site.
- PSTN or GSM/GPRS modem.
- Low voltage power supply (48 or 100VDC).

2400ip, for extreme conditions

Watertight IP65

- Investigations in the field under difficult environmen[...] conditions.
- IP65, resists to dust, water and splashing.
- 4 voltages – 4 currents (current clamps).
- Watertight connectors.
- Fixing for DIN rail, magnetic joining, fastening screw.
- Delivered in a suitcase.

2400R 19 inches and reinforced immunity

- The safety and immunity level of the ALPTEC 2400R is one of the highest in its category.
- 4 inputs for voltage measurement and 4 inputs for current measurement with galvanic isolation.
- Inputs through terminal blocks with screws for a maximum safety.
- Deliverable with a reinforced battery for 3h of autonomy.
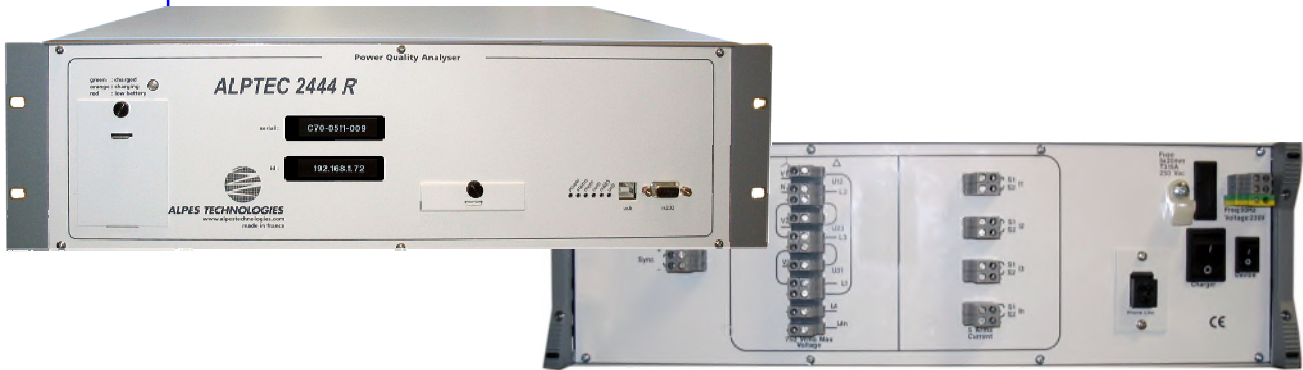
2400duo, Two devices in one

Simultaneous measurement of the electric parameters of two High Voltage transformers in the distribution and transportation substations or at the customer locations.

- 8 inputs for voltage measurement and 8 inputs for current measurement with DC insulation.
- Inputs through terminal blocks with screws for a maximum safety.

2 devices in 1

2400i, the user-friendliness of a portable

- 4 voltages – 4 currents (current clamps).
- Quick connectors.

Accessories

- Current clamps from 10A to 3000A.
- Flexible core Alpflex 300A-1000A-3000A.
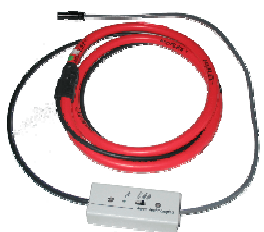
***A*** Web site is embedded in the ALPTEC 2400[1] range of devices making it possible to reach the data of the devices through Ethernet network without the use of an application software !!!
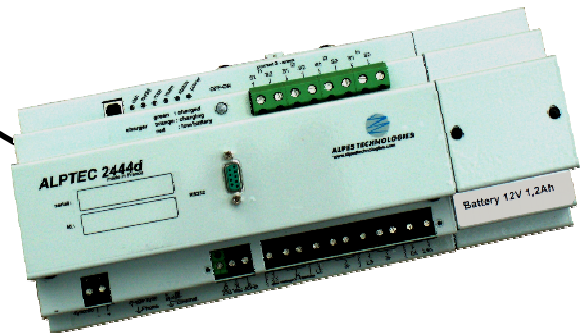
What could be easier than viewing immediately the Quality data and their history by means of your preferred Web browser.

▸ All the data recorded in the device are available and display on the pages of the embedded Web site.

▸ Through the Web site, it is possible to:

   o Read the RMS data on a defined period of time

   o Display the evolution of the symmetrical components

   o Read the harmonic levels

   o Display a list of (non) Quality events

   o Display the Dips waveform

   o Display the Quality table

   o Read and modify the configuration of the device

   o Change the date and the time of the device

   o Display the electrical values and the phasor at the same time.

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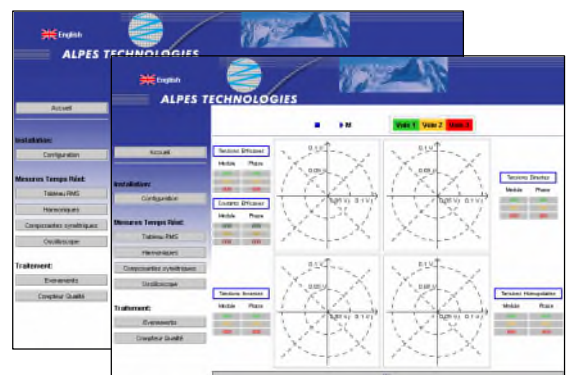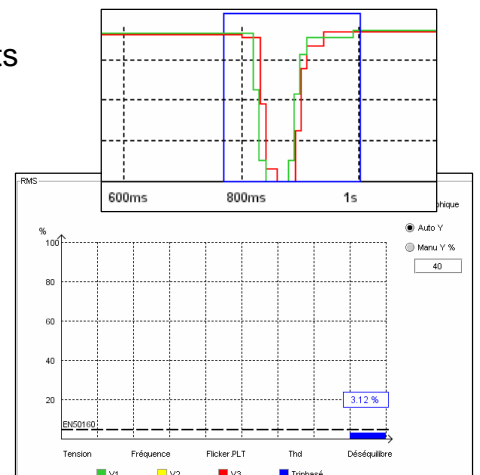
[1] If the device is equipped with the Ethernet option.

*T*he ALPTEC 2400[1] devices are able to send automatically alarm messages when an electrical threshold is exceeded.
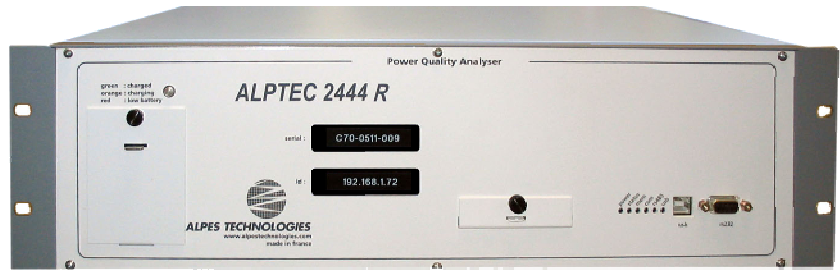
*T*he messages are sent by SMS or email in the 3 minutes of the appearance of a Quality failure.

*T*he data of the devices are automatically downloaded by the **WINALP** software following a scheduler.

The **WINALP** software communicates with the devices by means of one of the communication systems integrated in the devices, namely:
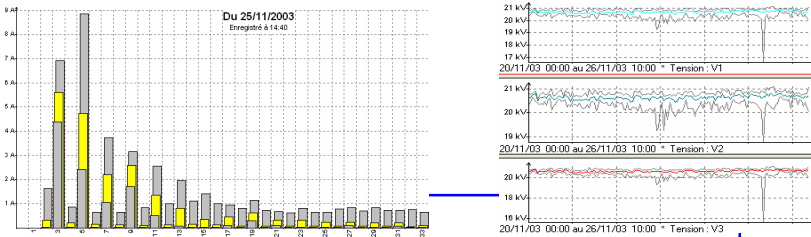
- Modem,
- GSM,
- Ethernet,
- USB,
- RS232,
- RS485.

WINALP Software

*E*very graphical table is **configurable** and the user can add remarks. The software makes it possible to analyse the data downloaded from different sites simultaneously.

RMS values and harmonics

Simultaneous display of different values synchronized on the same timebase.
- Display of the 52 harmonics in the time.
- Harmonic graph following CEI 61000-3-6 (option).

Histograms

Histograms on every RMS value possible.
24 hours and 1 week histograms.

Quality table

The quality of the network is visible in reports according to the UNIPEDE rules.
The conformity of the quality of the Network can be checked daily, weekly or monthly.

Events

The shape and the waveform of the events (Dips, Swells and Interruption) are displayed. The RMS values of the Voltages and the Currents are recorded during the event time.
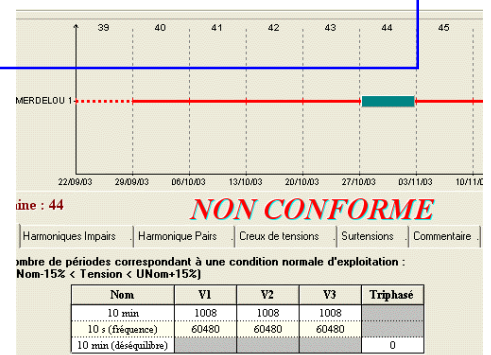
Analyse of the signalling voltage

Some electricity suppliers inject remote control voltage signals superimposed on the electricity Network.

- The Signalling Voltage window displays the list of the remote control frames (decoded) transmitted on the electrical network, as well as the associated magnitudes of the impulses.
- The date and time as well as its average rate of injection are associated with each frame.
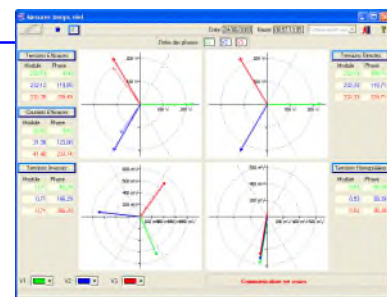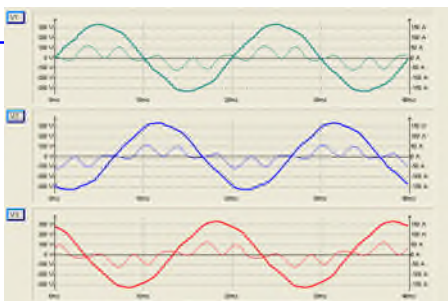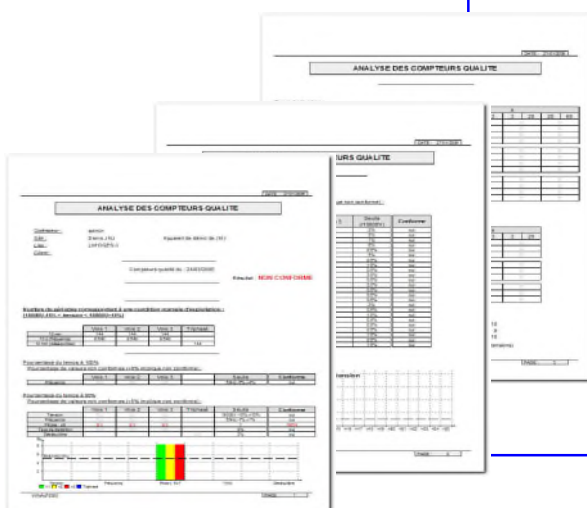
Real time display

At any time, the user can display the electrical values in the form of:

- Oscilloscopic display
- measurement tables
- Vectorial graphs (phasor)

This enables to permanently check any wiring defect and the real time status of the electrical Network.

Reports printing

- Reports following the EN50160 Standard (configurable) can be automatically generated.
- The data can be exported to a spreadsheet or copied to an other PC.
- The printout of the user configurable reports can be schedule from the software.

Voltage measurement

- 4 differential inputs
- Measurement range: 600-750 Vrms

Communication

- USB, Ethernet, PSTN modem PSTN (integrated), GSM (integrated), RS232, RS485

Power supply of the devices

- 190 - 264Vac / 240 - 360Vdc
- Option 48Vdc or 127Vdc
- Internal backup battery 30 min.

Standards

- CEI 61000-4-30 class A
- EN 50160
- CEI 61000-3-6/7 (Harmonic statistics, imbalance and flicker) optional.

Current measurement

- 4 input TI isolated
- Rated current: 5 Arms

Acquisition system

- Sampling frequency: **10,2 kHz**
- RMS measurement: **200 ms**

Synchronisation and Flagging

- **GPS** synchronisation
- 10 minutes pulses synchronisation
- **Flagging** of the data following EN61000-4-30

Acquisition time

- Dips, Swells and Interruptions: average 20 ms slicing by ½ period (CEI 61000-4-30)
- RMS measurement and harmonics: Values averaged on 200 ms
- Statistic measurements, RMS and harmonics: average, minimum, maximum on: 10 minutes (configurable), 1 hour, 24 hours, 7 days.
- 40 class of histograms:

    24 hours histograms based on 3 seconds data

    7 days histograms based on 10 minutes data

Recorded data

*D*ata are recorded in the memory card of the devices (CompactFLASH).

All data are simultaneously and continuously recorded from the switching on of the device.

The characteristics of our devices are subject to change and not contractual.

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