

## ENERGY SAVING, MONITORING AND CONTROL OF THE ELECTRIC INSTALLATION

In an increasingly competitive market every company must put efforts into the optimization of resources. One of the most important objectives is cost control and rationalization, including the inevitable cost linked to the consumption of electrical energy. The installation of an energy monitoring network makes it possible to control and optimize this resource; but also other important objectives can be achieved, as-for example- complete control over the electrical parameters (voltage, current etc.) in key points of the installation. Such control guarantees production-continuity, as it enables a rapid intervention by the maintenance staff or even preventive maintenance.

The advantages provided by a monitoring network can be summarized as follows:

- Keep a continuously updated accounting of consumptions basing on tariff bands and production processes/shifts.
- Decide on the most convenient contract for the supply of electric energy.
- Identify malfunctioning and energy wastes in your system.
- Precise management of electric energy necessary to manufacture a product or provide a service makes it possible to know and minimize the cost for each produced unit.
- Eliminate penalties caused by low Power Factor and load peaks exceeding the contractual power.
- Centralize in a single location all information regarding different loads.
- Reliable historical records of the most significant electrical parameters.
- Control locally or remotely a possible malfunction of the monitored system with the possibility to set alarms.



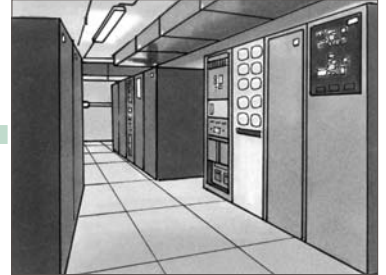
The monitoring network will provide data necessary for industrial accounting as well as data of more technical nature, important for planning preventive maintenance of electrical systems. A network is composed of microprocessor based instruments capable of measuring energy consumption and important electrical parameters. This data can be read remotely over a dedicated RS485 serial line. Such instruments are commonly known as energy analysers. Elcontrol Energy Net S.p.A. has been active for decades in the field of energy monitoring and produces a series of high quality energy analysers of well-known reliability and accuracy. Quality is ensured by a strict verification procedure; each single instrument is placed for 48 hours in a climatic chamber at 50° centigrade in order to reveal possible faulty components and eliminate them; each instrument is calibrated singularly and supplied with the related calibration certificate. The supervisory software has been developed with the objective of being easy and user-friendly while providing clear and detailed measurement data of immediate interpretation.

The installation of an energy monitoring network leads to guaranteed advantages for the company, but the structure of the network must be carefully studied basing on your specific requirements and on the characteristics of your electric installation. Elcontrol Energy Net S.p.A. and its experience are at your disposal for guiding you in this choice.

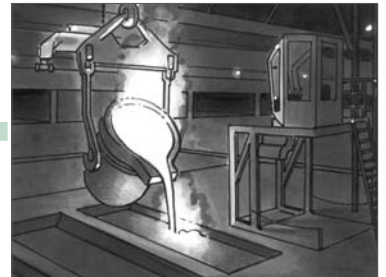
OFFICES



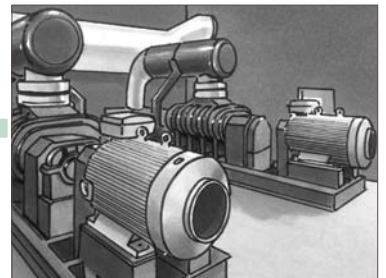
DATA PROCESSING CENTER



FOUNDRY



PLANT ROOM



WAREHOUSE



SWITCH ROOM

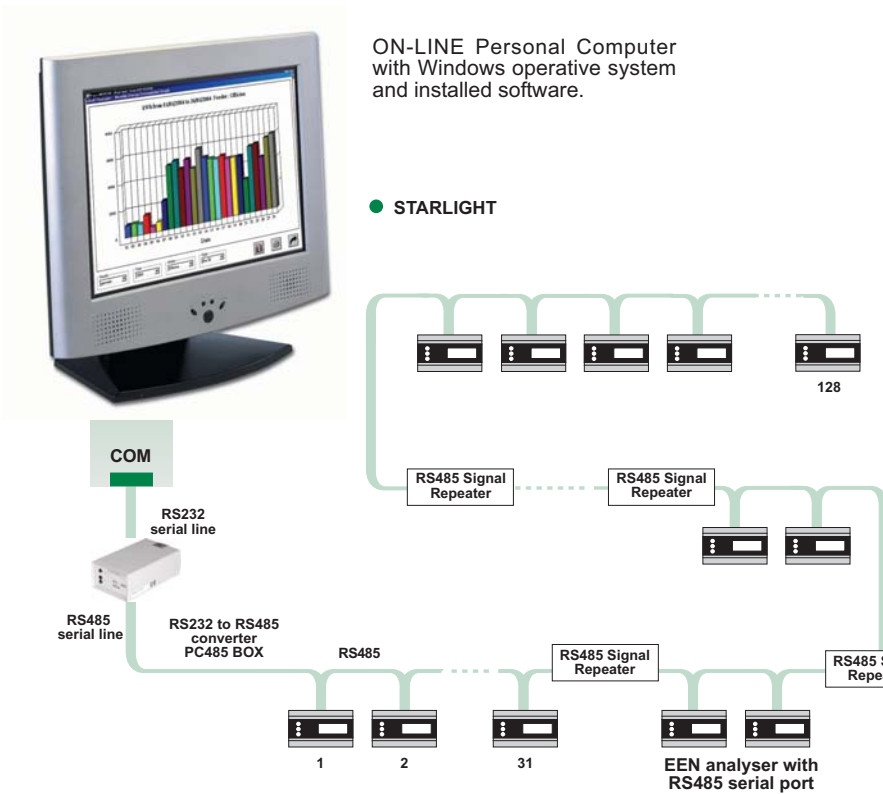


## ON-Line or OFF-Line Monitoring?

### ON-Line:

the Master-device is a PC continuously connected to the network, which remains permanently active. Thanks to a dedicated software, the instruments are regularly polled by the Master-PC and the result is a "continuous" flow of informations from the instruments to the PC.

This solution is ideal for such applications where it is important to have a continuous control of the real-time measurements, for example for alarm-signaling. The data is also saved on the PC's hard disk for archiving and later processing. The key-stone of this system is represented by the PC Software controlling the network. Elcontrol Energy Net's experience has led to user-friendly and reliable solutions, ranging from simple and cost-effective up to powerful and sophisticated software.



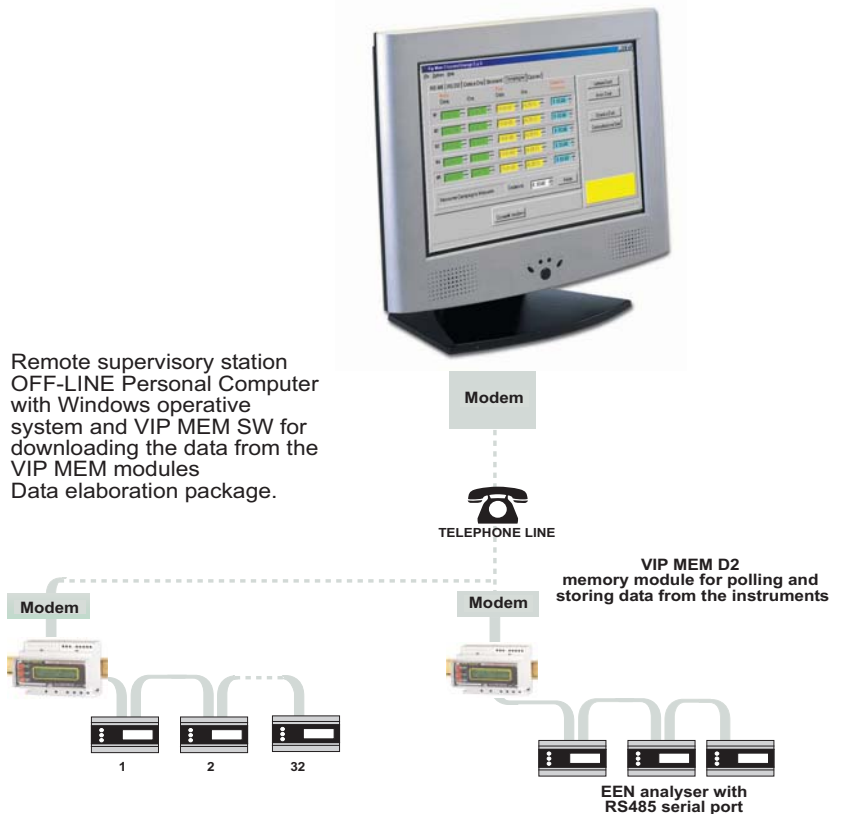
ON-LINE Personal Computer with Windows operative system and installed software.

● STARLIGHT

### OFF-Line:

this solution becomes important wherever a continuous connection of the PC to the network is impossible, unreliable or difficult; for example because the monitored network is in a remote location. For such situations, Elcontrol Energy Net has developed Vip Mem: Vip Mem can act as a Master for a network of up to 32 instruments connected to its RS485 port, independently polling the instruments and storing the data with time-stamps on a non-volatile 2Mb Flash-Memory. Connection to a PC is required only when the memory is to be downloaded. The connection can be either direct via Vip Mem's integrated RS232 port or remote over a telephone-line and Modem connection. Vip Mem includes Vip Mem SW a PC software, which allows remote configuration and data-download from the Vip Mem.

Remote supervisory station OFF-LINE Personal Computer with Windows operative system and VIP MEM SW for downloading the data from the VIP MEM modules Data elaboration package.



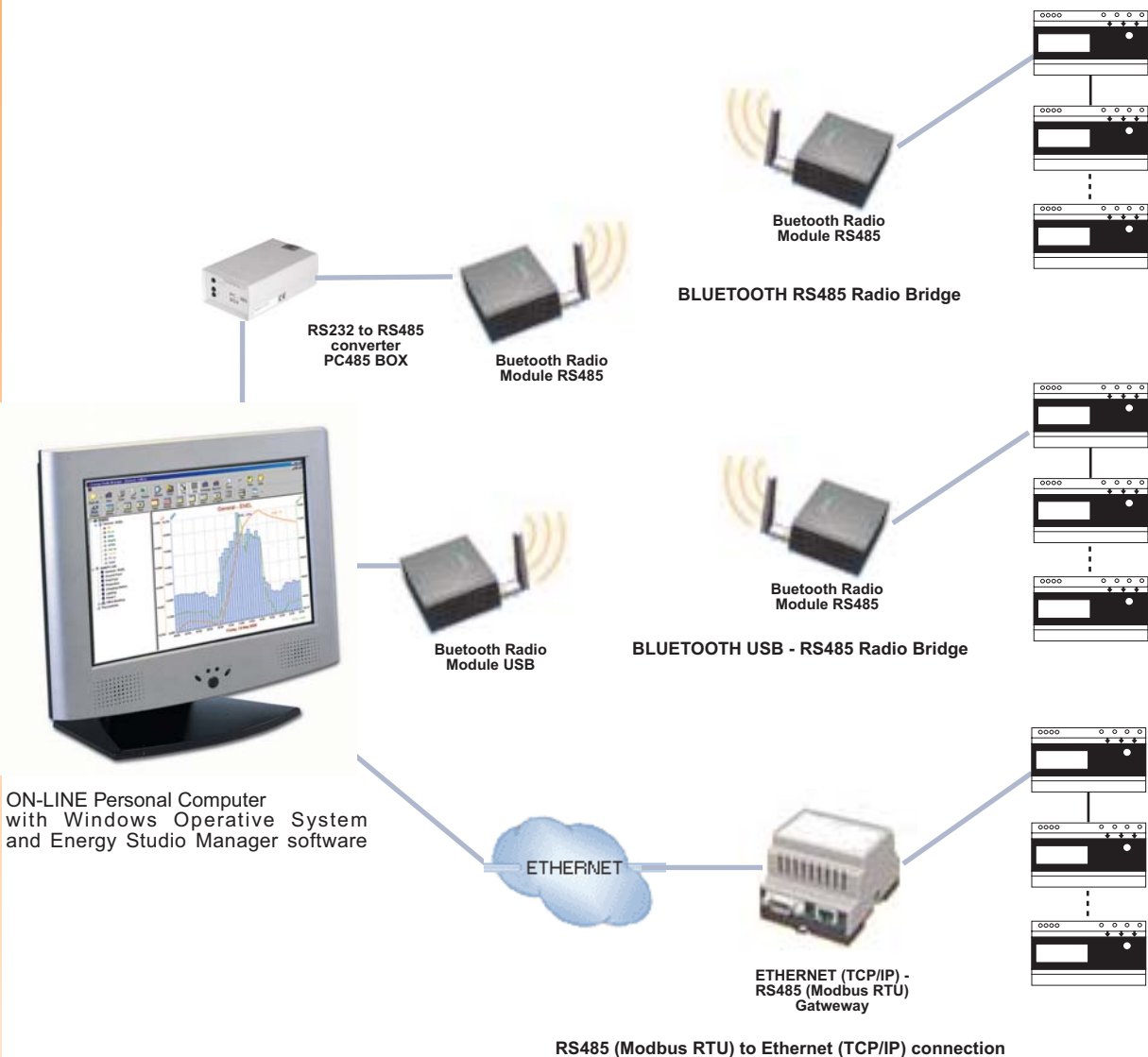
# MONITORING NETWORKS

All Elcontrol Energy Net Power Analysers can be equipped with a RS485 serial port supporting Modbus RTU (BCD or IEEE) and ASCII.

The RS485 connection was chosen due to its high reliability in industrial environments and easy implementation. The standard multi-point RS485 allows connections of up to 247 devices with overall distances of up to 1200 metres, via a shielded, twisted signal-cable, like the Belden 3105A. Special Signal-Repeaters can be used for further extension of the mentioned distances.

Furthermore, the high diffusion of the RS485 standard in the industrial field guarantees the availability of a full spectrum of Converters and Gateways to all major data-communication standards, like Ethernet (TCP/IP), and wireless Signal-bridges, like Bluetooth.

In the following just a few typical examples:



中國總代理：  
萬高寶有限公司  
香港沙田安平街八號偉達中心 1207-8 室  
電話：+852 23078933；傳真：+852 23078950  
電郵：info@mgl.com.hk；網址：www.mgl.com.hk