STAR3 - Energy & Harmonics Analyser

96 x 96 POWER ANALYSERS

STAR3 is a high quality 96x96 panel energy analyser providing brillant features at a price never reached before. STAR3 is a perfect, professional and low cost solution for electrical panels, sub metering systems and OEM applications.
STAR3 is equipped with an exclusive reverse-LCD display, combining the advantages of LCD displays with the unrivalled visibility of "traditional" LED displays. The harmonic analysis, the wide set of measured parameters including the TDH (available in all the models), the multi-protocol capability of the RS485 port, the switching power supply and the high accuracy class 0.5% allow to consider STAR3 the new state of art of the of the panel analysers market.
The model including harmonic analysis allows a permanent based control of one of the most important aspects of power supply quality. Such important possibility, up to now, was reserved only to high-cost devices. STAR3 breaks this price barrier bringing, for the first time, harmonic analysis into the panel analyser market.

Main Features

- Digital energy and harmonics analyzer 96x96mm.
- True RMS measures.
- Displays 52 measures and 202 measures for model with harmonics.
- Unbalanced three phase systems delta or star, bi-phase single phase.
- High accuracy: Voltage, Current and Power error <0.5%.
- Bright backlit red number on dark background LCD display. It is visible in any lighting condition also from long distance.
- Cogeneration Counters.
- Total harmonic distortion factor per phase.
- Alarm, pulses and analogue outputs.
- RS485 communication port included in all models.
- Multi-protocol instrument.
- Easy and extremely flexible SETUP menu including CT and VT ratios selection.
- Password protection for setup and resets.
- Model with three phase Harmonic Analysis up to the 25th order and 202 measures.
- Switching Power Supply (90V to 230V AC or DC).

66 Measures

Further to all typical information provided by traditional analysers, Star3 monitors various additional parameters as:

The **THD% (Total Harmonic Distortion)** is a clear indication of an otherwise hidden problem: harmonic distortion. Current and voltage harmonics endanger the electrical installation (power transformer(s), neutral lines, circuit breakers and Power Factor Correction equipments) and such sensitive and expensive loads as for example IT loads.

The model including full **Harmonic Analysis**, allows a further, in-depth examination of the harmonic spectrum: voltage and current harmonics up to the 25th order are clearly displayed in numerical format, allowing a first-sight assessment of the causes of distortion.

The **Neutral Current** informs about the condition of the neutral cable, often overcharged as a consequence of unbalanced loads and harmonics.

The **Maximum Demand** of current tells you clearly if the components of the electrical network, cables, breakers, contactors, bus bars etc., are overcharged.

Cogeneration Energy Counters enable energy measurement of both active and reactive energy on 4 quadrants, for installations with Cogeneration Plants.

Available Models:

STAR3 basic model
Measures all parameters listed in the below table. Includes an RS485 port with multiprotocol capability: Modbus RTU (BCD and IEEE) and Modbus ASCII. The importance of the communication and the lower cost of the components allow today the inclusion of the RS485 port as a default feature. Even if you are not immediately interested in setting up a network of instruments, this possibility will remain always available for future developments.

STAR3 ALM: As the basic model + 2 relay outputs. The outputs can be set for either alarm signalling or pulses generation or to be remotely controlled via the RS485 port. The "Alarm" function can be associated with several measures including V, A, W, THD. The relay is triggered by a maximum and a minimum threshold; histeresys and the delay time can be set. All the settings can be adjusted by means of the keyboard. If used in "Pulse" mode the relays generate pulses proportional to the associated measure. Also in this case the behaviour is adjustable via the setup menu.
In "remote control" the position of the relays is controlled by an external master device (PLC, PC, etc) via the RS485 line. This is very convenient for load shedding applications.

STAR3 4-20mA: As the basic model + 2 analogue outputs 0/4-20mA. The two analogue outputs are fully configurable by means of the Setup-Menu. The user can choose the measures to be linked with the outputs, configure the output range choosing between the 0-20mA or 4-20mA range and set the full scale value for the chosen measurements.

PARAMETERS	TOT	L1	L2	L3	N
Phase-neutral Voltage [V]	•	•	•	•	
Phase-phase Voltage [V]		L1-L2	L2-L3	L3-L1	
Current [A]	•	•	•	•	•
Power Factor	•	•	•	•	
Frequency [Hz]		•			
Average Current [A]		•	•	•	
Maximum Demand Current [I]	•	•	•	•	
Active Power [kW]	•		•	•	
Reactive Power [kvar]	•	•	•	•	
Apparent Power [kVA]	•	•	•	•	
Average Active Power [kW]	•				
Average Reactive Power [kvar]	•				
Average Apparent Power [kVA]	•				
Maximum Demand Active Power [kW]	•				
Maximum Demand Reactive Power [kvar]	•				
Maximum Demand Apparent Power [kVA]	•				
Positive (Imported) Active Energy [kWh]	•				
COG-negative (Exp.) Active Energy [kWh]	•				
Positive Reactive Energy [kvarh]	•				
COG-negative Reactive Energy [kvarh]	•				
Apparent Energy [kVAh]	•				
Current Tdh%	•	•	•	•	
Voltage Tdh%	•	•	•	•	

STAR3 HARMO:
As Star3 ALM + three phase harmonics spectrum for voltage and current. In addition to the basic measures of the above table, this model displays complete information about the harmonic spectrum.
The instrument display also the harmonics using bar graph pages. For each harmonic order k the following values are available:

HARMONIC ORDER (k=1..25 @ 50Hz - k=1..20 @ 60Hz)	L1	L2	L3
Harmonic Voltage Vk	•	•	•
Harmonic Current Ik	•	•	•

The accuracy of the harmonic measures is totally independent from the frequency of the fundamental.
The instrument measures harmonics up to the frequency of 1250 Hz which is the 25th in case of fundamental at 50 Hz. In case of higher frequency value of the fundamental, the numbers of available orders decreases automatically.

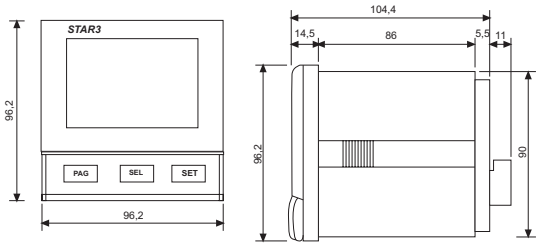
General Technical Characteristics

Maximum dimensions (mm): instrumen 96 x 96 x115.4
Cut-out template: 91 x91mm.
Power supply: from 90 to 230 V AC/DC (0÷400Hz) + 15% -20% (5VA)
Display: reverse red LCD with LED backlight
Voltmeter inputs: VL1, VL2, VL3, N up to 350 V ~ phase-neutral, 600 V ~phase-to-phase, 35 ÷ 400Hz.
Voltmeter input impedance: 2 M ohm
Voltage input overload: max 850 V phase-neutral
Current inputs: AL1, AL2, AL3, COM; 5A. Consumption 1 VA. /5A external curr. transf. required.
Measuring range: 0-120% nominal current
Sensitivity: current 20mA; voltage 10V
Overcurrent: withstands 50A for 1 sec.
Number of scales: 1 voltage scale, 2 current scales
Measurements: T.R.M.S. (true effective value) up to 25th harmonic = 1250Hz with fundamental @50 Hz
Sampling frequency: 2,5kHz
Accuracy: error <0.25% for V and I, <0.25% for Power (EN 62053-21)
Connection: Single-phase or three-phase star, three-phase delta, or diphase systems
Weight of the instrument: 0.6 Kg
Protection level: instrument IP20, front panel IP40
Temperature range: -10°C ÷ + 50°C
Relative humidity range (R.H.): from 20% to 90%.
Condensation: non condensing.
Relay output: V 250 max, 120 mA AC max

Standards and Regulations

STAR3 conforms to Directive 73/23/CEE (LVD) and 2004/108/CE (EMC). It has been designed with reference to EN 61010-1, EN 61326 including append. A1/A2/A3, EN 61000-6-2, EN 61000-6-3, EN 61000-3-2, EN 61000-3-3, EN 61000-3-3/A1, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-5/A1, EN 61000-4-6, EN 61000-4-6/A1, EN 61000-4-8, EN 61000-4-8/A1, EN 61000-4-11, EN 61000-4-11/A1.

Dimensions (mm)



VIP 396 - Energy Analyser

ACCURATE, RELIABLE, PERFORMING

VIP396 is a 96x96mm panel mount multi-functional instrument ideal for the mesaurement and display of electrical parameters. The large clear LED displays showing the parameters and values are easily read under all lighting conditions. VIP396 displays up to 28 parameters (see table), and is suitable for installation in single phase, two phase and three phase systems. Connection is via sturdy 2.5 mm2 terminals and 5A secondary CTs for current measurement. Operation is simple and straightforward; all measurements and settings can be done via 3 pushbuttons: PAG, SEL, SET.
The SEL and SET keys, used only during setup, are hidden behind a hinged cover.

- ¤Replaces many traditional instruments with one single digital package
- ¤Improved accuracy and reliability
- ¤Simple installation reducing costs
- ¤Competitive pricing
- ¤TrueRMS instrument: Superior performance on distorted waveforms
- ¤Optional Outputs: Modbus/RS485,Lonworks/FTT10A; relay output; analogue outputs

Available Models

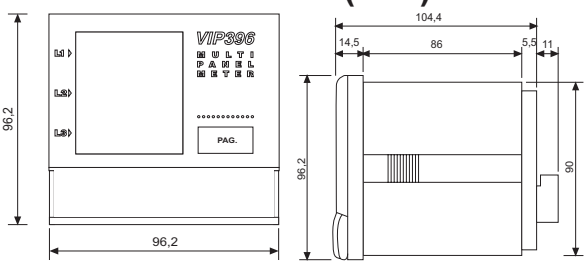
VIP396:
Displays shows all the measures listed in the below table.
VIP396 485:
Includes an RS485 serial port with multiprotocol capability : Modbus RTU, Modbus IEEE and Modbus ASCII
VIP396 485 ALM:
RS485 serial port + two relay outputs.
The outputs can be set for alarm signalling, pulses generation or to be remotely controlled via the RS485 port.
The “Alarm” function can be associated with several measures. The relay is triggered by a maximum and a minimum threshold; histeresys and the delay time can be set. All the settings can be adjusted by means of the keyboard. If used in “Pulse” mode the relay generates pulses proportional to the associated measure. Also in this case the behaviour is adjustable with the setup menu. In “remote control” the position of the relays is decided by an external master device (PLC, PC, etc) via the RS485 line. This is very convenient for load shedding applications.
VIP396 485 4-20mA:
This model is equipped with 2 analogue outputs.
The current on each output varies proportionally to the measured value of the parameter associated to the output, within the 0-20mA or 4-20mA range. The outputs (0-20mA or 4-20mA, associated measure, full-scale value) are fully programmable by the user via the instrument's SETUP menu.
VIP396 LON/FTT10 ALM1:
The leading technology for the buildingand factory automation is now available in this Energy Analyser from Elcontrol Energy Net. This unique instrument can be connected to any LONWORKS system, ensuring full compatibility.

General Technical Characteristics

Maximum size (mm): instrument: 96 X 96 X 115.4
Cut-out template: 91 X 91
Power supply: 230 V ~ or 115 V ~ ± 10% @ 50/60 Hz (4 VA)
Display: Seven-segment 13 mm red LED’s, 3 digit on 3 lines
Voltmeter inputs: VL1, VL2, VL3, N up to 350 V ~ phase-neutral, 600 V ~ phase-to-phase, 35 ÷ 400 Hz.
Voltmeter input impedance: 2 MOhm
Voltage input overload: max 850 V phase-neutral
Amperometric inputs: AL1, AL2, AL3, COM 5A. Consumption 1 VA; /5A external curr.transf. required
Measurement range: 0 - 120% nominal current
Current input overload: withstands 50A for 1sec.
Sensitivity: 20mA current ; 10V voltage
Number of scales: 1 voltage scale, 2 current scales
Measurements: T.R.M.S. up to 24th harmonic (50 Hz), 20th (60 Hz)
Accuracy: error <0.5% for V and I, <1.0% for Power (EN 62053-21)
Suitable for connection to: Single phase or three phase star, three phase delta, or diphase systems
Weight of instrument: 0.6 Kg
Protection level: instrument IP20, front panel IP30
Ambient temperature range: -10°C + 60°C
Relative humidity range (R.H.): from 20% to 80%.
Condensation: not allowed
Relay output: V 250 max 120 mA A.C. max

PARAMETERS	TOT	L1	L2	L3	N
V	·	·	·	·	
A	·	·	·	·	·
kW	·	·	·	·	
kvar		·	·	·	
kVA	·	·	·	·	
P.F.	·	·	·	·	
Hz		·			
kWh	·				
kVArh	·				
kVAh	·				

Dimensions (mm)



Standards and Regulations

Vip 396 conforms to Directive 73/23/CEE (LVD) and 2004/108/CE (EMC). It has been designed with reference to EN 61010-1, EN 61326 including append. A1/A2/A3, EN 61000-6-2, EN 61000-6-3, EN 61000-3-2, EN 61000-3-3, EN 61000-3-3/A1, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-5/A1, EN 61000-4-6, EN 61000-4-6/A1, EN 61000-4-8, EN 61000-4-8/A1, EN 61000-4-11, EN 61000-4-11/A1.

VIP96 PLUS - Power and Harmonic Analyzer

For single-phase or balanced three-phase loads
MORE THAN 100 MEASUREMENT FUNCTIONS

INSTANTANEOUS MEASUREMENTS:
- Volt (rms), Amp (rms), P.F. cosØ, kW, kvar, kVA, Hz.
- ± kWh (imported/exported energy), ± kvarh (inductive/capacitive energy)
- kW, kVA, kvar average and peak values

HARMONIC ANALYSIS:

- Measurement of harmonic values (from 1st to 24th order) of V and I-expressed as absolute and percentage values- including phase angles.
- Total Harmonic Distortion (THD) of V and I referred to the fundamental and total RMS value.
- Crest Factor of V and I expressed as absolute and percentage values.

VIP96 - Power Meter

For single-phase or balanced three-phase loads
9 MEASUREMENT FUNCTIONS IN 1

INSTANTANEOUS MEASUREMENTS:
- Volt (rms), Amp (rms), P.F. cosØ, kW, kvar, kVA, Hz
- kW, kVA, kvar average and peak values

Vip96 Plus/Vip96

Main Features:

- Single-phase and three-phase (balanced loads) measurements.
- Measurements as true RMS value.
- Measurements with external CT (selectable from 5/5 to 3000/5A) or directly with intenal CT up to 5 A max (VIP96).
  Direct measurement up to 30 A (VIP96 - 30A).
- High accuracy (Class 1).
- Very user-friendly.
- Backlit LCD display.

Available Models:

- **VIP96 PLUS 485:** RS485 serial port Modbus ASCII
- **VIP96 PLUS 485:** RS485 serial port Modbus ASCII+ direct current imput up to 30A

- **VIP96:** basic unit
- **VIP96 - RS232C:** RS232C serial port
- **VIP96 - APQ:** with analog outputs proportional to Active (W) and Reactive (VAr) Power.
- **VIP96- RPQ:** with pulsed outputs proportional to Active (W) and Reactive (VAr) Power.
- **VIP96 - 30A APQ:** with analog outputs proportional to Active (W) and Reactive (VAr) Power.

Technical Data:

Maximum size (mm): instrument: 96 x 96 x 115.4
Cut-out template: 91 x 91
Power supply: 230 V ~ or 115 V ~ ± 10% @ 50/60 Hz (4 VA)
Display: Backlit LCD
Voltmeter inputs: VL1, N up to 600 V rms, 35 ÷600 Hz.
Voltage input impedance: 4MOhm
Voltage input overload: max 850 V phase-neutral
Current input: Max 5Arms.
Measurement range: 0 - 120% nominal current
Number of scales: 3 voltage scales, 3 current scales
Measurements: T.R.M.S. up to 24th harmonic (50 Hz), 20th (60 Hz)
Accuracy: error <0.5% for V and I, <1.0% for Power (EN 62053-21)
Suitable for connection to: Single phase or balanced three phase
Weight of instrument: 1 Kg
Protection level: instrument IP20, front panel IP30
Ambient temperature range: -10°C + 50°C
Relative humidity range (R.H.): from 20% to 80%.
Condensation: not allowed

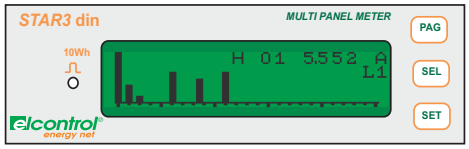
Standards and Regulations

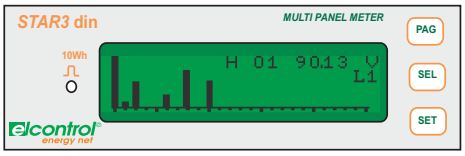
Vip96 conforms to Directive 73/23/CEE (LVD) and 2004/108/CE (EMC). It has been designed with reference to EN 61010-1, EN 61326 including append. A1/A2/A3, EN 61000-6-2, EN 61000-6-3, EN 61000-3-2, EN 61000-3-3, EN 61000-3-3/A1, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-5/A1, EN 61000-4-6, EN 61000-4-6/A1, EN 61000-4-8, EN 61000-4-8/A1, EN 61000-4-11, EN 61000-4-11/A1.

STAR3 DIN - Energy and Harmonics Analyser

Top-performance at affordable Cost

STAR3 Din It is a perfect, professional and low cost solution for electrical panels, sub metering systems and OEM applications.





This high quality panel energy analyser provides brillant features at a price never reached before. The bright LCD display, the harmonic analysis, the wide set of measured parameters including the TDH (available in all the models), the multi-protocol capability of the RS485 port and the high accuracy class 0.5% allow to consider STAR3 din the new state of art of the of the panel analysers market.

The model including harmonic analysis allows a permanent based control of one of the most important aspects of power supply quality. Such important possibility, up to now, was reserved only to high-cost devices. STAR3 din breaks this price barrier bringing, for the first time, harmonic analysis into the panel analyser market.

Main Features

- Digital Energy and Harmonics Analyzer 9 DIN modules.
- True RMS measures.
- Display 65 measures (215 measures for model with harmonic analysis).
- Measures unbalanced three phase systems with or without neutral, bi-phase, single-phase.
- High accuracy : Voltage, Current and Power error <0.5%.
- High resolution graphic LCD display.
- Cogeneration Counters (Imported / Exported Energy).
- Total Harmonic Distortion (THD) factor per phase.
- Rs485 communication port included in all models.
- Multi-protocol instrument: Modbus BCD, IEEE and ASCII.
- Easy and extremely flexible SETUP menu including CT and VT ratios selection.
- Password protection for setup and resets.
- Model with three phase Harmonic Analysis up to the 25th order and 215 measures.
- Alarm / Pulse / Remote-controlled output.
- 3 years warranty period.

66 Measures

Further to all typical information provided by traditional analysers, Star3din monitors various additional parameters as:

The THD% (Total Harmonic Distortion) is a clear indication of an otherwise hidden problem: harmonic distortion. Current and voltage harmonics endanger the electrical installation (power transformer(s), neutral lines, circuit breakers and Power Factor Correction equipments) and such sensitive and expensive loads as for example IT loads.

The model including full Harmonic Analysis, allows a further, in-depth examination of the harmonic spectrum: voltage and current harmonics up to the 25th order are clearly displayed in numerical and bar-graph format, allowing a first-sight assessment of the causes of distortion.

The Neutral Current informs about the condition of the neutral cable, often overcharged as a consequence of unbalanced loads and harmonics.

The Maximum Demand of current tells you clearly if the components of the electrical network, cables, breakers, contactors, bus bars etc., are overcharged.

Minimum and Maximum Voltage and Current readings per phase with bar graph indication allow immediate understanding of their variations.

Cogeneration Energy Counters enable energy measurement of both active and reactive energy on 4 quadrants, for installations with Cogeneration Plants.

DIN-RAIL POWER ANALYSERS

Available Models:

STAR3 din basic model

Measures all parameters listed in the below table. Includes an RS485 port with multiprotocol capability: Modbus RTU (BCD and IEEE) and Modbus ASCII. The importance of the communication and the lower cost of the components allow today the inclusion of the RS485 port as a default feature. Even if you are not immediately interested in setting up a network of instruments, this possibility will remain always available for future developments.

STAR3 din ALM 1:

As the basic model + one relay output.

The output can be set for either alarm signalling or pulses generation or to be remotely controlled via the RS485 port. The "Alarm" function can be associated with several measures including V, A, W, THD. The relay is triggered by a maximum and a minimum threshold; histeresys and the delay time can be set. All the settings can be adjusted by means of the keyboard. If used in "Pulse" mode the relay generates pulses proportional to the associated measure.

Also in this case the behaviour is adjustable via the setup menu. In "remote control" the position of the relay is controlled by an external master device (PLC, PC, etc) via RS485. This is very convenient for load shedding applications.

STAR3 din HARMO:

As Star3 din ALM 1 + three phase harmonics spectrum for voltage and current. In addition to the basic measures of the above table, this model displays complete information about the harmonic spectrum.

The instrument display also the harmonics using bar graph pages. For each harmonic order k the following values are available:

HARMONIC ORDER (k=1..25 @ 50Hz - k=1..20 @ 60Hz)	L1	L2	L3
HARMONIC VOLTAGE VK	•	•	•
HARMONIC CURRENT IK	•	•	•

The accuracy of the harmonic measures is totally independent from the frequency of the fundamental. The instrument measures harmonics up to the frequency of 1250 Hz which is the 25th in case of fundamental at 50 Hz. In case of higher frequency value of the fundamental, the numbers of available orders decreases automatically.

Measures

PARAMETERS	TOT	L1	L2	L3	N
Phase-neutral Voltage [V]	•	•	•	•	
Phase-phase Voltage [V]		L1-L2	L2-L3	L3-L1	
Minimum Voltage [V]		•	•	•	
Maximum Voltage [V]		•	•	•	
Current [A]	•	•	•	•	•
Power Factor	•	•	•	•	
Frequency [Hz]		•			
Average Current [A]		•	•	•	
Maximum Demand Current [I]		•	•	•	
Minimun Current [I]		•	•	•	
Maximum Current [I]		•	•	•	
Active Power [kW]	•	•	•	•	
Reactive Power [kvar]	•	•	•	•	
Apparent Power [kVA]	•	•	•	•	
Average Active Power [kW]	•				
Average Reactive Power [kvar]	•				
Average Apparent Power [kVA]	•				
Maximum Demand Active Power [kW]	•				
Maximum Demand Reactive Power [kvar]	•				
Maximum Demand Apparent Power [kVA]	•				
Positive (Imported) Active Energy [kWh]	•				
Cog-negative (Expo) Active Energy [kWh]	•				
Positive Reactive Energy [kvarh]	•				
Cog-negative Reactive Energy [kvarh]	•				
Apparent Energy [Kvah]	•				
Current Thd%	•	•	•	•	•
Voltage Thd%	•	•	•	•	•

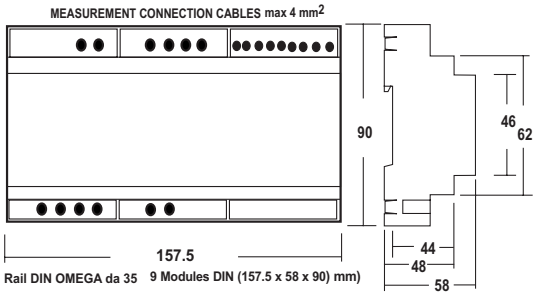
General Technical Characteristics

Maximum size (mm): instrument: 158.5 X 73 X 90. (9 DIN module)
Power supply: from network 230 V ~ or 115 V ~ + 15% -20% @ 35/400 Hz (consumption: 4VA)
Display: LCD display, dot-matrix
Voltmeter inputs: VL1, VL2, VL3, N up to 430 V ~ phase-neutral, 600 V ~phase-to-phase, 35 ÷ 400Hz.
Voltmeter input impedance: 2 M ohm
Voltage input overload: max 850 V phase-neutral
Current inputs: AL1, AL2, AL3; 5A. Consumption 1 VA. External CT(s) required.
Measurement range: 0 - 120% nominal current
Sensitivity: 20mA current ; 10V voltage
Current input overload: withstands 50A for 1sec.
Number of scales: 1 voltage scale, 2 current scales
Measurements: T.R.M.S. (true effective value) up to 25th harmonic = 1250 Hz with fundamental @50 Hz
Accuracy: error <0.5% for V, I and Power (EN 62053-21)
Suitable for connection to: Single-Phase, Three-Phase Star, Three-Phase Delta or Two-Phase systems
Weight of instrument: 0.6 Kg
Protection level: instrument IP20, front panel IP40
Ambient temperature range: -10°C ÷ + 50°C
Relative humidity range (R.H.): from 20% to 90%.
Condensation: condensation not allowed.
Relay output : 100VAC max, 120 mA AC max

Standards and Regulations

STAR3 Din conforms to Directive 73/23/CEE (LVD) and 2004/108/CE (EMC). It has been designed with reference to EN 61010-1, EN 61326 including append. A1/A2/A3, EN 61000-6-2, EN 61000-6-3, EN 61000-3-2, EN 61000-3-3, EN 61000-3-3/A1, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-5/A1, EN 61000-4-6, EN 61000-4-6/A1, EN 61000-4-8, EN 61000-4-8/A1, EN 61000-4-11, EN 61000-4-11/A1.

Dimensions (mm)



DMM3 - Energy Analyser

ACCURATE, RELIABLE, PERFORMING

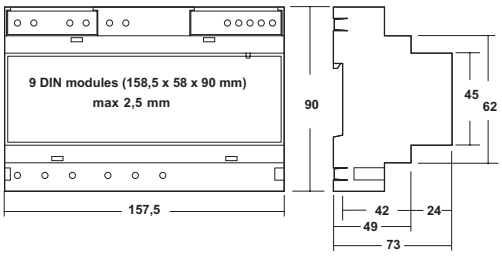
DMM3 is a 9 DIN module multi-functional instrument ideal for the measurement and display of electrical parameters. The large and clear LED displays are easily read under any lighting condition. DMM3 displays up to 28 parameters (see table) and is suitable for single-phase, two-phase, three-phase Star and three-phase Delta installation, via sturdy 2,5mm^2 terminals.
Operation is simple and straightforward; all measurements and settings can be done via 3 pushbuttons: PAG, SEL, SET.

- ¤Replaces many traditional instruments with one single digital package
- ¤Improved accuracy and reliability
- ¤Simple installation reducing costs
- ¤Competitive pricing
- ¤TrueRMS instrument: Superior performance on distorted waveforms
- ¤Optional Outputs: Modbus/RS485,Lonworks/FTT10A; relay output; analogue outputs

General Technical Characteristics

Maximum size (mm): instrument: 158.5 X 73 X 90. (9 DIN module)
Power supply: from network 230 V ~ or 115 V ~ ± 15% -20% @ 35/400 Hz (consumption: 4VA)
Display: 7 segments red LED
Voltmeter inputs: VL1, VL2, VL3, N up to 430 V ~ phase-neutral, 600 V ~phase-to-phase, 35 ÷ 400Hz.
Voltmeter input impedance: 2 M ohm
Voltage input overload: max 850 V phase-neutral
Current inputs: AL1, AL2, AL3; 5A. Consumption 1 VA. External CT(s) required.
Measurement range: 0 - 120% nominal current
Sensitivity: 20mA current ; 10V voltage
Current input overload: withstands 50A for 1sec.
Number of scales: 1 voltage scale, 2 current scales
Measurements: T.R.M.S. (true effective value) up to 25th harmonic = 1250 Hz with fundamental @50 Hz
Accuracy: error <0.5% for V and I, <1.0% for Power (EN 62053-21)
Suitable for connection to: Single-Phase, Three-Phase Star,
Three-Phase Delta or Two-Phase systems
Weight of instrument: 0.6 Kg
Protection level: instrument IP20, front panel IP40
Ambient temperature range: -10°C ÷ + 50°C
Relative humidity range (R.H.): from 20% to 90%.
Condensation: condensation not allowed.
Relay output : 100VAC max, 120 mA AC max

Dimensions (mm)



28 Instruments in 1

Available Models

DMM3: Displays shows all the measures listed in the below table.
DMM3 485 ALM1: Includes an RS485 serial port with multiprotocol capability : Modbus RTU, Modbus IEEE and Modbus ASCII + one relay output. The output can be set for either alarm signalling or pulses generation or to be remotely controlled via the RS485 port. The "Alarm" function can be associated with several measures. The relay is triggered by a maximum and a minimum threshold; histeresys and the delay time can be set. All the settings can be adjusted by means of the keyboard. If used in "Pulse" mode the relay generates pulses proportional to the associated measure. Also in this case the behaviour is adjustable with the setup menu. In "Remote Control" the position of the relay is controlled by an external master device (PLC, PC, etc) via the RS485 line. This is very convenient for load shedding application.
DMM3 4-20mA: This model is equipped with 2 analogue outputs. The current on each output varies proportionally to the measured value of the parameter associated to the output, within the 0-20mA or 4-20mA range. The outputs (0-20mA or 4-20mA, associated measure, full-scale value) are fully programmable by the user via the instrument's SETUP menu.
DMM3 LON/FTT10 ALM1: The leading technology for the building and factoring automation is now available in this Energy Analyser from Elcontrol Energy Net. This unique instrument can be connected to any LONWORKS system, ensuring the compatibility.

Measures

PARAMETERS	TOT	L1	L2	L3	N
V	•	•	•	•	
A	•	•	•	•	•
W	•	•	•	•	
var	•	•	•	•	
VA	•	•	•	•	
P.F.	•	•	•	•	
HZ		•			
A neutral	•				
kWh	•				
kVArh	•				
kVAh	•				

Standards and Regulations

DMM3 conforms to Directive 73/23/CEE (LVD) and 2004/108/CE (EMC). It has been designed with reference to EN 61010-1, EN 61326 including append. A1/A2/A3, EN 61000-6-2, EN 61000-6-3, EN 61000-3-2, EN 61000-3-3, EN 61000-3-3/A1, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-5/A1, EN 61000-4-6, EN 61000-4-6/A1, EN 61000-4-8, EN 61000-4-8/A1, EN 61000-4-11, EN 61000-4-11/A1.

ED39din - Multi-Tariff Analyser

Tariff-band / Multipurpose Counter and Analyser

ED39din 485 is a 9 DIN module multi-functional instrument ideal for the measurement and display of the electrical energy consumption and maximum demand.
It measures energy consumption divided into up to four tariff bands, selectable by means of external digital signals.
The digital inputs can be also used as a multipurpose pulse counters displaying consumption from any kind of meter (gas, water, production units, steam, etc.) equipped with pulse output.
All the data can be read via the RS485 interface.
The large clear LED displays showing the parameters and values are easily read under all lighting conditions.
The instrument displays up to 25 parameters (see table), and is suitable for installation in single phase, two phase and three phase systems. Connection is via sturdy 2.5mm^2 terminals and 5A secondary CTs for current measurement.
Operation is via simple pushbuttons located on the front panel.
The set up pages can be password-protected.

- Tariff-band based energy accounting
- Possibility to display the consumption from external counters and make it avialable via RS485
- Improved accuracy and reliability
- Simple installation reducing costs
- Competitive pricing
- TrueRMS instrument: Superior performance on distorted waveforms

General Technical Characteristics

Maximum size (mm): instrument: 157.5 X 73 X 90 (9 DIN module)
Power supply: from network 230 V ~ or 115 V ~ ± 10% @ 50/60 Hz (4 VA)
Display: Seven-segment 13 mm red LED's, 3 digit on 1 line
Voltmeter inputs: VL1, VL2, VL3, N up to 430 V ~ phase-neutral, 600 V ~ phase-to-phase, 35 ÷ 400 Hz.
Voltmeter input impedance: 2 M
Voltage input overload: max 850 V phase-neutral
Current Inputs: AL1, AL2, AL3; 5A. Consumption 1 VA. Three /5A external current transformer required 3 PH and n, 3 PH
Current inputs overload: withstands 50A for 1sec.
Digital inputs: 2 digital inputs volt-free
Number of scales: 1 voltage scale, 2 current scales
Measurements: T.R.M.S. (true effective value) up to 24th harmonic (50 Hz), 20th (60 Hz)
Accuracy: error <0.5% for V and I, <1.0% for Power (EN 62053-21)
Suitable for connection to: Single phase or three phase star, three phase delta, or two phase systems
Weight of instrument: 0.6 Kg
Protection level: instrument IP20, front panel IP40
Ambient temperature range: -10°C ÷ + 60°C
Relative humidity range (R.H.): from 20% to 80%.
Condensation: non permitted.

Displayed Measures:

ED39din 485 is equipped with an RS485 serial output with MODBUS ASCII, RTU(BCD) and IEEE protocol that can be selected into the setup menu. The serial line transmits a long list of information including several measurement not available into the display.
The ASCII protocol transmits all the measures listed in the table:

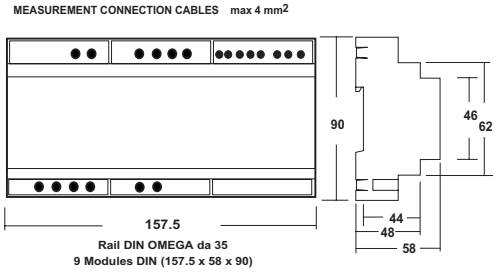
Measures

PARAMETERS	L1	L2	L3	TOT
kW	•	•	•	•
kW-Avg				•
kW-md				•
kvar	•	•	•	•
kvar-Avg				•
kvar-md				•
kVA	•	•	•	•
kVA-Avg				•
kVA-md				•
kWh				•
kWh-T1				•
kWh-T2				•
kWh-T3				•
kWh-T4				•
kVAh				•
kVArh				•

Standards and Regulations

ED39din conforms to Directive 73/23/CEE (LVD) and 2004/108/CE (EMC). It has been designed with reference to EN 61010-1, EN 61326 including append. A1/A2/A3, EN 61000-6-2, EN 61000-6-3, EN 61000-3-2, EN 61000-3-3, EN 61000-3-3/A1, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-5/A1, EN 61000-4-6, EN 61000-4-6/A1, EN 61000-4-8, EN 61000-4-8/A1, EN 61000-4-11, EN 61000-4-11/A1.

Dimensions (mm)



SIRIO 485 ALM
Energy Counter/Analyser

Compact, Low-cost Analyser

SIRIO is a 4 DIN module multi-functional low cost instrument ideal for the measurement and display of the main electrical parameters.
SIRIO displays 7 major True-RMS measures on its 8 digits LCD display.
Over 40 measures are available on the integrated RS485 serial port supporting Modbus BCD, IEEE and ASCII.
SIRIO is equipped with two relay outputs, user-configurable as alarm-, pulse- or remote-controlled relays.
Sirio can be installed in single and three-phase unbalanced delta/star systems. Connection is via sturdy 4 mm2 terminals for voltage and current measurement.

SIRIO can advantageously replace by itself several panel mounted traditional instruments saving space, simplifying cabling and offering improved performance in terms of reliability and accuracy at a very competitive price. All the parameters can be configured from the keyboard with the instrument already installed. The setup pages and the counters-reset can be password-protected.

General Technical Characteristics

Maximum size (mm): instrument: 70 x 58 x 90. (4 DIN modules)
Power supply: from network 230V or 115V ± 10%, 35÷400 Hz (2VA)
Display: LCD 128 segments 8 digits.
Voltmeter imputs: VL1, VL2, VL3, N up to 264V phase-neutral, 450V phase-phase, 35 ÷ 400 Hz.
Voltmeter inputs Impedence: 2 Mohm
Voltage input overload: max 600V phase-neutral
Number of scales: 1 voltage scale, 2 current scales.
Current inputs: AL1, AL2, AL3; 5A. Consumtion 1 VA. Three external/5A CurrentTrasf. necessary.
Current Input overload: 7A permanent, 15A for 1sec.
Measurements: T.R.M.S (true root mean square) up to the 25th harmonics (50hz), 20th (60hz).
Accuracy: error <1.0% for V and I, <2.0% for Power (EN 62053-21)
Suitable for connection: Single-phase, Three-phase Star,Three-phase Delta, Bi-phase
Weight of the instrument: 0,3 Kg
Protection level: instrument IP20, front panel IP40
Ambient Temperature Range: -10°C ÷ + 60°C
Relative Humidity Range (R.H.): from 20% to 80%.
Condensation: not permitted
Output relays: 1 electronic relay 120 mA 100VAC + 1 mechanical relay 1 Amp 250V

Displayed Measures

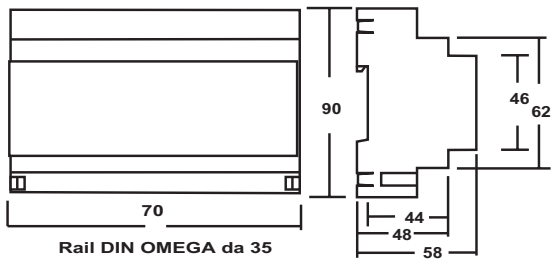
PARAMETERS	TOT	L1	L2	L3
V	•			
A	•			
kW	•			
P.F.	•			
kW-Avg	•			
kW-md	•			
kWh	•			

RS485 PORT:
Multi-Protocol RS485 serial port supporting Modbus RTU (BCD and IEEE) and Modbus ASCII.

RELAY OUTPUTS:
The outputs can be set for either alarm signalling or pulses generation or to be remotely controlled via the RS485 port.
The “Alarm” function can be associated with several measures.
The relay is triggered by a maximum and a minimum threshold; histeresys and the delay time can be set.
All the settings can be adjusted by means of the keyboard.
If used in “Pulse” mode the relay generates pulses proportional to the associated measure.
Also in this case the behaviour is adjustable with the setup menu.
In “remote control” the position of the relays is decided by an external master device (PLC, PC, etc) via the RS485 line.
This is very convenient for load shedding application.

Dimensions (mm)

MEASUREMENT CONNECTION CABLES max 2,5 mm ²



Rail DIN OMEGA da 35

4 Modules DIN (68 x 58 x 90)

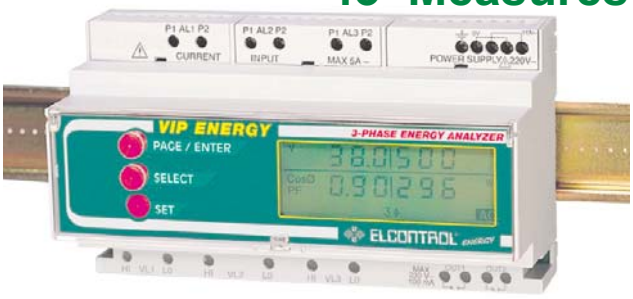
Standards and Regulations

Sirio conforms to Directive 73/23/CEE (LVD) and 2004/108/CE (EMC). It has been designed with reference to EN 61010-1, EN 61326 including append. A1/A2/A3, EN 61000-6-2, EN 61000-6-3, EN 61000-3-2, EN 61000-3-3, EN 61000-3-3/A1, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-5/A1, EN 61000-4-6, EN 61000-4-6/A1, EN 61000-4-8, EN 61000-4-8/A1, EN 61000-4-11, EN 61000-4-11/A1.

VIP ENERGY - Three-phase Energy Analyzers

43 Measures

VIP ENERGY is a measuring instrument in a 9 module DIN standard container allowing direct installation on a 35 mm DIN Rail.
The instrument can be used in three-phase systems with 3 or 4 wires (2 voltage and 2 current or 3 voltage and 3 current) in low voltage systems or (by means of connection to a voltage transformer) in medium and high voltage systems. The electrical parameters measurable are: Volt, Amp, CosPhi, P.F., kW, kVA, kVAr, Hz, kWh, KVArh, kVA Peak, kW Peak, Average KW, Average KVA, Average KVAr, THDF, Date, Time. The instrument also supplies the active and apparent power peak values with an integration time of 10, 15, 20, 30, 60, 1, 2, 5 minutes.



Main Features

- Digital Energy Analyzer 9 DIN modules.
- True RMS measures.
- Display 43 measures.
- Measures unbalanced three phase systems with or without neutral, bi-phase, single-phase.
- High accuracy : Voltage, Current and Power error <1.0%.
- Backlit LCD display.
- Cogeneration Counters (Imported / Exported Energy).
- Easy and extremely flexible SETUP menu including CT and VT ratios selection.
  Models equipped with:
- Rs485 communication port Modbus ASCII.
- Alarm / Pulse / Remote-controlled Relay-Outputs.

Technical Data:

Maximum size (mm): instrument: 157.5 X 73 X 90 (9 DIN module)
Power supply: from network 230 V ~ or 115 V ~ ± 10% @ 50/60 Hz (consumption: 8VA)
Display: LCD display with backlight
Voltmeter inputs: VL1, VL2, VL3, N up to 550 V ~ phase-neutral, 20 ÷ 600Hz
Voltage input overload: 2000 Vrms (for 60 seconds)
Current inputs: AL1, AL2, AL3 5A, 20 ÷ 600Hz
Current input overload: 100A for 1 second
Sensitivity: V - 111mV, I - 0,2mA
Number of scales: 2 voltage scale, 3 current scales
Accuracy: error <0.5% for V and I, <1.0% for Power (EN 62053-21)
Suitable for connection to: Single-Phase, Three-Phase Star, Three-Phase Delta or Two-Phase systems
Weight of instrument: 1 Kg
Protection level: instrument IP20, front panel IP40
Ambient temperature range: -10°C ÷ + 60°C
Relative humidity range (R.H.): from 20% to 80%
Condensation: condensation not allowed

Standards and Regulations

Vip Energy conforms to Directive 73/23/CEE (LVD) and 2004/108/CE (EMC). It has been designed with reference to EN 61010-1, EN 61326 including append. A1/A2/A3, EN 61000-6-2, EN 61000-6-3, EN 61000-3-2, EN 61000-3-3, EN 61000-3-3/A1, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-5/A1, EN 61000-4-6, EN 61000-4-6/A1, EN 61000-4-8, EN 61000-4-8/A1, EN 61000-4-11, EN 61000-4-11/A1.

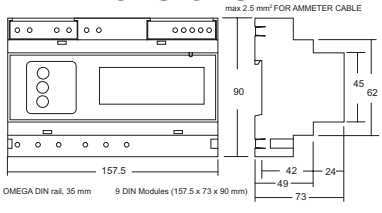
Available Models

VIP ENERGY: Standard model for unbalanced three-phase systems Measurements on STAR (4 wires) or DELTA (3 wires). Direct measurements up to 5A, 550V, or with external CT, PT up to 999999 A, 999999 V max.
Measures and displays Volts, Amps, W, P.F. cosø, VAr, VA, Hz, kwh, kvarh, VA Peak, W Peak, Average kW, Average kVA, Average kvar, Crest Factor (1/THDF), Date, Time, replacing 43 instruments and using the space and connections of just one.
4-quadrant energy counters kWh, kvarh Import/Export.
VIP ENERGY ALM 485: Standard model + 2 relay-outputs + RS485 port
ALARM-Mode:MINIMUM and MAXIMUM alarms on any 2 measurements chosen by the user from 27 of those displayed, with selection of the ON and OFF delay time (from 0 to 999 seconds) and of the MINIMUM and MAXIMUM threshold hysteresis (from 0 to 17.5% in steps of 2.5%) for each of the two relays which can be connected to the alarms.
PULSE-Mode: the relays generate pulses proportional to the associated measures. Also in this case the behaviour is adjustable via the setup menu.
REMOTE-Mode: the position of the relays is decided by an external master device (PLC, PC, etc) via the RS485 line. This is very convenient for load shedding application.
RS485-Port: RS485 serial port supporting Modbus ASCII.
VIP ENERGY ALM 485 30A: Standard model + 2 relay-outputs + RS485 port + direct current inputs up to 30A.
VIP ENERGY ALM 485 24VDC:
Standard model + 2 relay-outputs + RS485 port + 24Vdc Power Supply

Measures

Parameters	Tot	L1	L2	L3	N
Phase-neutral Voltage [V]	•	•	•	•	
Phase-phase Voltage [V]		L1-L2	L2-L3	L3-L1	
Current [A]	•	•	•	•	
Power Factor	•	•	•	•	
Frequency [Hz]		•			
Active Power [kW]	•	•	•	•	
Reactive Power [kvar]	•	•	•	•	
Apparent Power [kVA]	•	•	•	•	
Average Active Power [kW]	•				
Average Reactive Power [kvar]	•				
Average Apparent Power [kVA]	•				
Maximum Demand Active Power [kW]	•				
Maximum Demand Apparent Power [kVA]	•				
Positive (Imported) Active Energy [kWh]	•	•	•	•	
Cog-negative (Expo) Active Energy [kWh]	•				
Positive Reactive Energy [kvarh]	•				
Cog-negative Reactive Energy [kvarh]	•				
Date			•		
Time			•		

Dimensions



ENERGY MASTER - Modulo di Memoria Flash

Energy Master is a compact module that autonomously and actively performs all functions necessary to manage a RS485 network of Power & Energy Analysers, collecting all measurement data from a remote network of Power & Energy Analysers and storing them on its internal, non-volatile memory without need of any further control by the user.

The data collected on Energy Master's memory can be downloaded via Ethernet or via Modem (GSM Modem available) manually at any moment, automatically at scheduled intervals or whenever the memory is nearly exhausted. Further to the above, Energy Master allows the setting of user-defined alarm conditions and thus warns immediately of anomalous conditions or dangerous events on the power network.
Energy Master takes care of all operations necessary to supervise the Energy Monitoring Network, automatically providing ready-to-use data and warning the supervisor of the installation of any anomaly.

Main Technical Data:

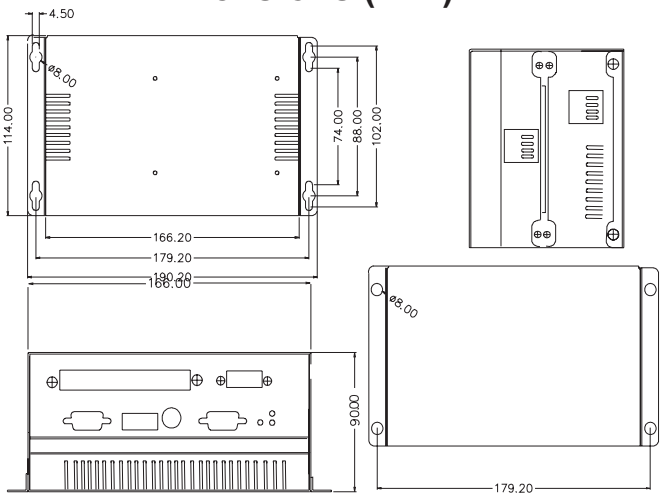
Operating System: XP EMBEDDED
Communication ports: RS485, ETHERNET, RS232 (modem)
Maximum number of instruments: 128 analysers
Protocol RS485: MODBUS RTU (IEEE)
Minimum reading time: 1sec
Memory size: 200Mbyte

Duration of the memory:
Saving all the data every 15 minutes:
10 instruments = 21 months
50 instruments = 4 months
Saving only kWh, kVArh, kW, kVAr, every 1 minute
10 instruments = 32 months
50 instruments = 6 months

Alarm messages:
1 message available per each instrument of the network checked every time the instrument is read.
1 high priority message for the whole network checked with high frequency (2 or 4 sec).

PC Software: software for controlling and downloading compatible with WINDOWS XP, WINDOWS NT.
Languages: English , Italian, French, German, Spanish.
External Modem: E.E.N.-Approved model available.
Power supply: 100-240VAC 50/60Hz 30VA

Dimensions (mm)



Standards and Regulations

"Energy Master" conforms to Directive 73/23/CEE (LVD), 2004/108/CE (EMC), 2002/95/CE (RoHS), 2002/96/CE and later changes 2003/108/CE; EN 55022: 1998 (Class A); EN 61000-3-3: 1995+A1: 2001; EN 55024: 1998+ A1: 2001.
It has been designed with reference to EN 61010-1, EN 61326 including append A1/A2/A3,EN 61000-6-2, EN 61000-6-3, EN 61000-3-2, EN 61000-3-3, EN 61000-3-3/A1, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-5/A1, EN 61000-4-6, EN 61000-4-6/A1, EN 61000-4-8, EN 61000-4-8/A1, EN 61000-4-11, EN 61000-4-11/A1.

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.

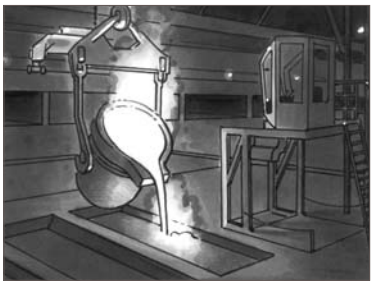
-Control locally or remotely a possible malfunction of the monitored system with the possibility to set alarms.

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 know 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.

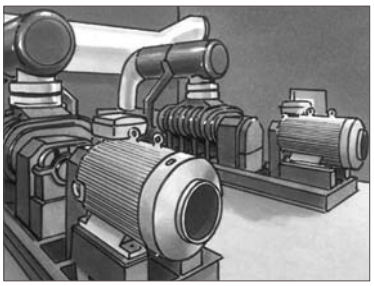
OFFICES

DATA PROCESSING CENTER

FOUNDRY

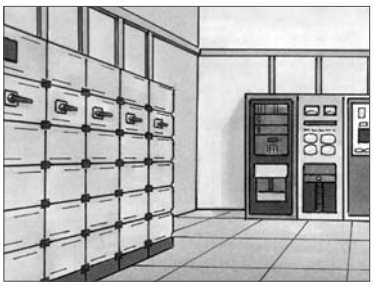


PLANT ROOM



WAREHOUSE

SWITCH ROOM



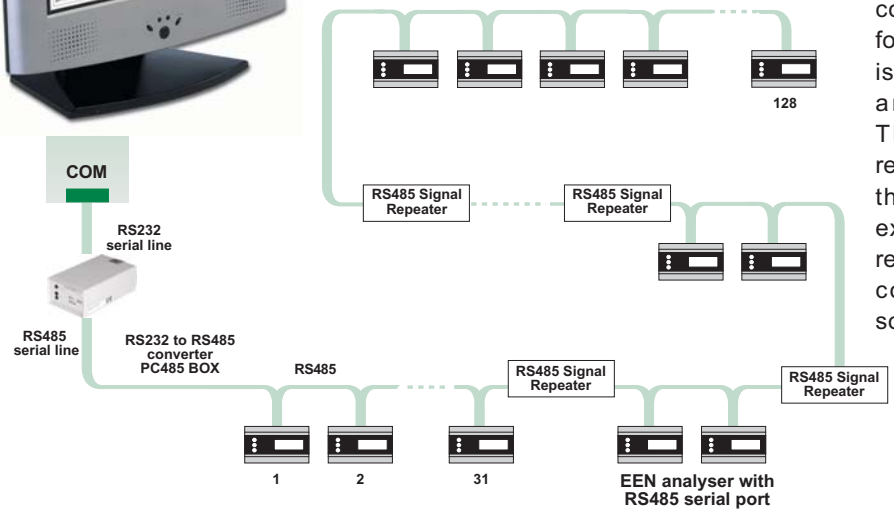
ON-Line or OFF-Line Monitoring?

ON-Line:

the Master-device is a PC continuosly 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 "continous" flow of informations from the instruments to the PC.
This solution is ideal for such applications where it is important to have a continous 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-fiendly 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.

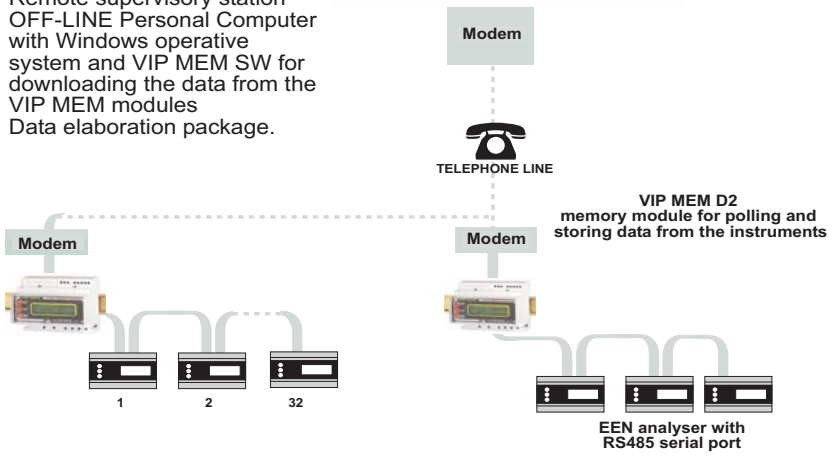
● STARLIGHT



OFF-Line:

this solution becomes important wherever a continous connection of the PC to the network is impossible, unreliable or difficult; for example because the monitord 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 it's 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.



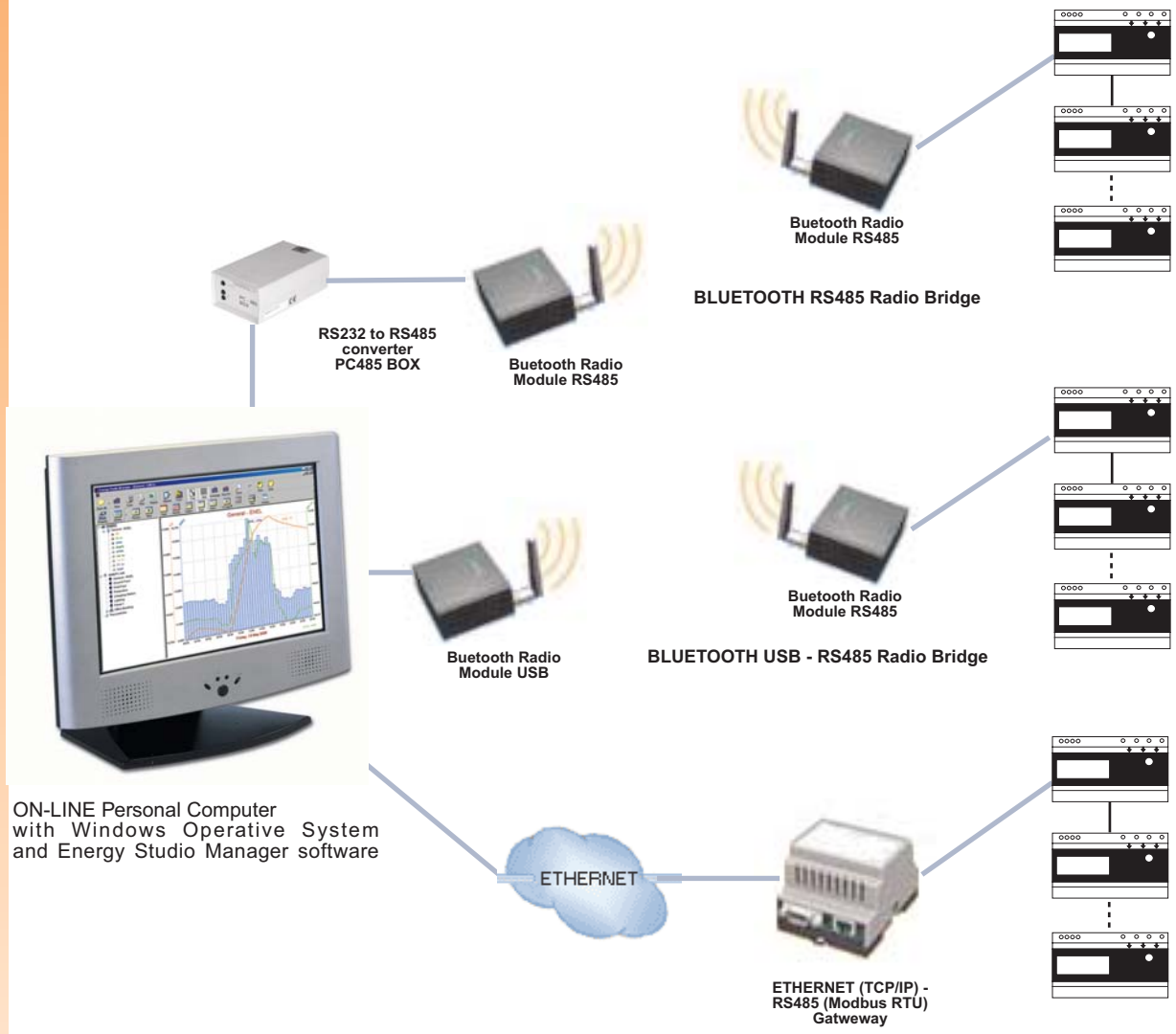
ENERGY MANAGEMENT

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:



ON-LINE Personal Computer
with Windows Operative System
and Energy Studio Manager software

RS485 (Modbus RTU) to Ethernet (TCP/IP) connection

ENERGY STUDIO MANAGER

COMPLETE, EASY-TO-USE, EXPANDABLE SUPERVISORY SOFTWARE

For Windows 9x, 2000 and XP

Languages: UK, IT, DE, FR, ES

ENERGY STUDIO MANAGER is the professional solution for management of a network of Elcontrol energy analysers. The Key-Word about E.S.M. is flexibility:

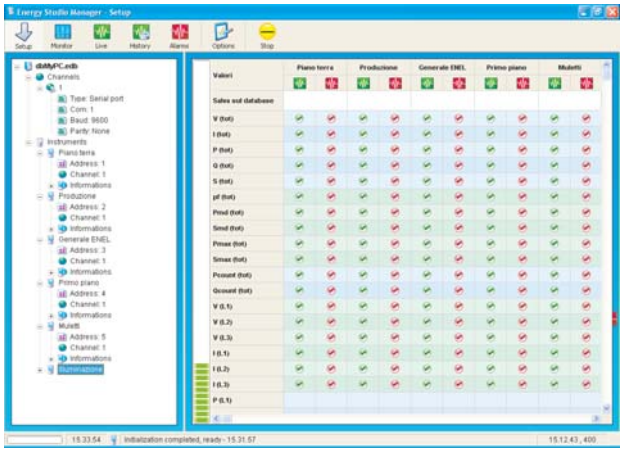
-Monitor, E.S.M.'s runtime-application, allows polling, visualization and saving to database of selectable data from any analyser of a network of up to 247 instruments. Moreover, at any moment its functions can be further expanded by installing additional modules:

-Alarms&Graphics: adds full alarm-functions on any selected parameter (max/min thresholds with settable hysteresis) and real-time/historical graphics of selected parameters. The Alarm&Graphics module is ideal for real-time management and supervision of your installation.

-GSM Commander: when the highest degree of control is required, the GSM Commander module adds GSM capability to Energy Studio Manager. Alarms and commands can be completely managed by SMS or E-Mail via a GSM-Modem.

-Analysis is E.S.M.'s Data Management application, allowing complete postprocessing of the data collected by Monitor. Analysis allows graphical and numerical analysis and reporting of all stored energy and power data. Analysis includes an innovative, fully configurable tariff-band/cost management system, providing accurate cost-analysis and reproting of energy consumptions.

Energy Studio Manager MONITOR:



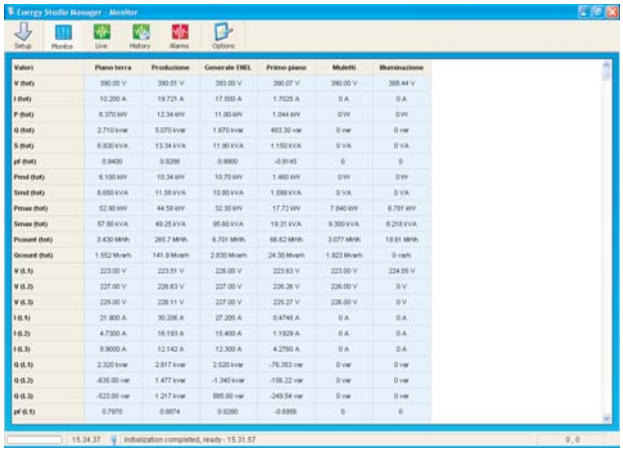
MONITOR provides a user-friendly and intuitive setup-environment for the monitoring network.

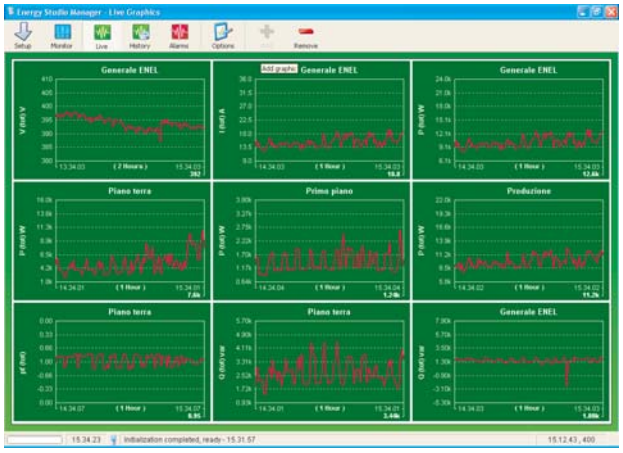
-Simply set up one or more communication channels, as for example the serial communication port, and start adding instruments. Each instrument can be assigned to its communication channel and freely named.

- Energy Studio Manager supports RS232/RS485 serial communication and Modbus TCP/IP (Ethernet) communication.

-For each instrument, the user can decide which measurement parameters shall be displayed and/or stored to database.

Once setup is completed, data acquisition can be started. E.S.M. automatically handles polling and data-synchronization/storage to hard disk.
A clear spreadsheet-display shows the most recent data for each instrument and selected measurement.



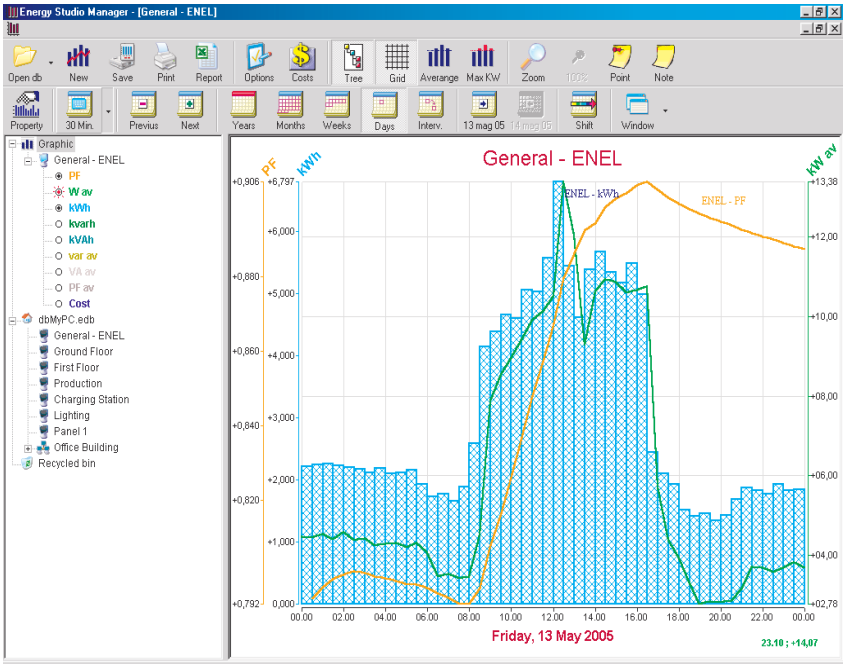


The Graphics&Alarms module adds real-time graphic display and alarms to Energy Studio Manager!

-Up to 9 selectable measurments can be displayed as real-time graphs. The measurement/instrument to be displayed can be selected at any moment by the user.

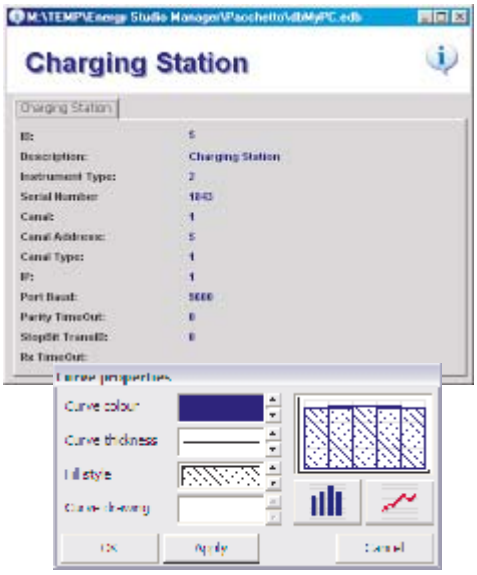
-Any measure can be associated to an alarm by setting an upper and/or lower threshold and optionally a hysteresis band. Alarms are signalled on Monitor's screen and handled following ISO rules.

Energy Studio Manager ANALYSIS:

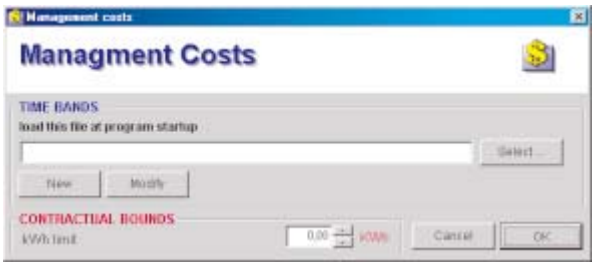


ANALYSIS is Energy Studio Manager's Data-Processing application. All data stored in the databases created by MONITOR, can be accessed anytime, from the same PC or from different workstations. Analysis has been designed to provide fast and efficient graphs and reports generation. Data can be analysed graphically to verify consumption trends and demand peaks.

While retaining a simple and intuitive approach, Analysis provides outstanding flexibility for the representation of the data. Graphs are fully configurable for what concerns displayed measurements, scales and apparence.
At any moment it is possible to recall the details and notes referring to the monitored load and add notes directly on the graphs.



The clear tree-view of the device connected to the network allows a fast selection of the data to be processed.
"Virtual Instruments", the sum of two or more instruments, can be created in a moment by using drag-and-drop.



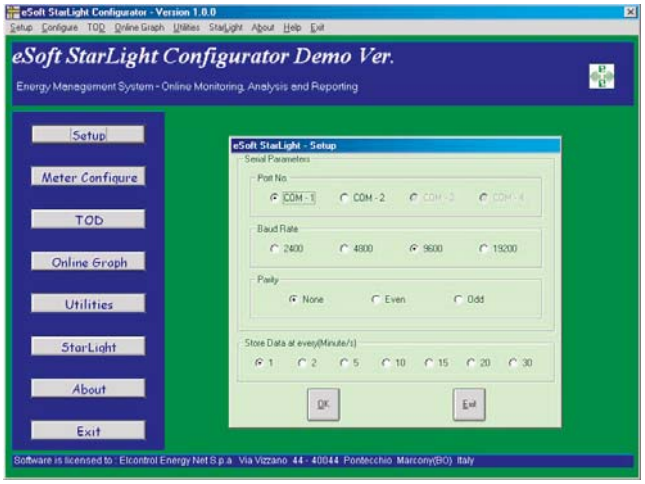
A new and innovative Cost Management function allows to translate energy data into economical data. The innovative approach of Energy Studio Manager provides 100% flexibility in the definition of the tariff-bans and kWh costs. An Excel-powered application generates tariff/cost calendars with tariff-band changes up to every 15 minutes! No matter how complex your tariffs or shifts are, Energy Studio Manager will adapt to your needs.

STARLIGHT

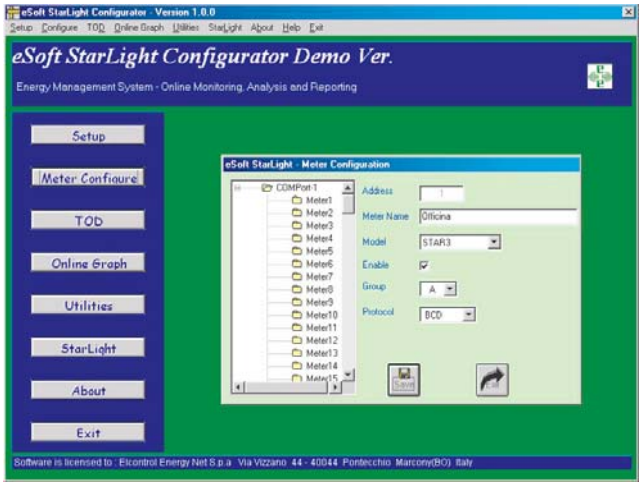
EASY-TO-USE, COST-EFFECTIVE MONITORING AND MANAGEMENT SOFTWARE

For Windows 9x, 2000 and XP
Languages: English, Italian

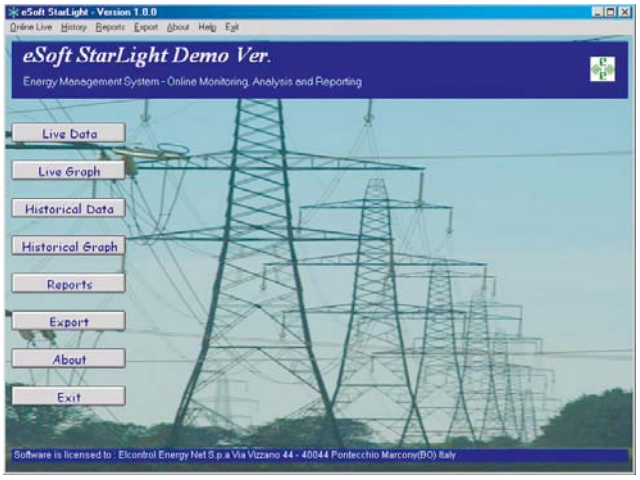
STARLIGHT is a new cost-effective software from Elcontrol providing all the most important features needed to achieve a complete control of the costs and of the measurements related with the electrical power supply systems. It allows the data collection and management of a network of up to 128 Elcontrol analyzers. It covers the whole range of Elcontrol instruments RS485 serial port. A new powerful report tool allows to obtain a clear view of the energy consumptions over the time. Historical measures and reports can be easily exported to Excel for further analysis.



Starlight includes an interactive configurator and the runtime application. The interactive configurator provides easy and user-friendly configuration of the instrument network. First step : select the serial port from those available on the system and the communication parameters

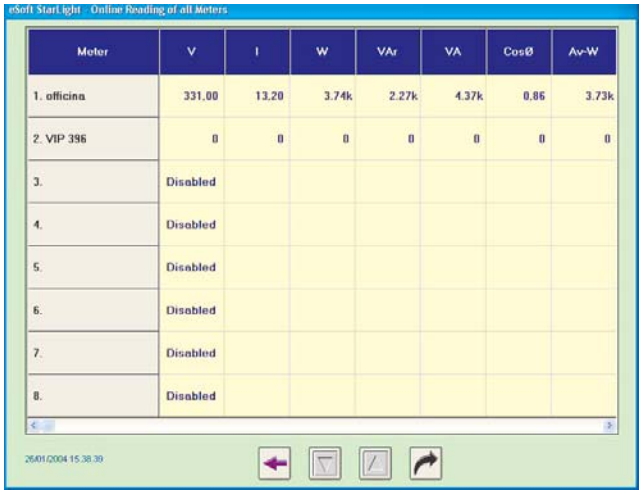


Second step: from a simple tree-diagram, select both the model and the desired communication protocol of the instruments, assign the preferred name to identify the load or the cost area.
Ready to go ! Configuration of the system requires only a few clicks of the mouse.



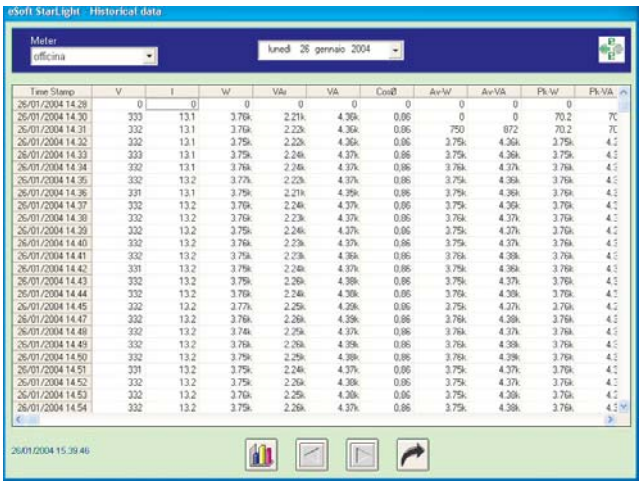
Once the configuration of the network is complete the access to the Configurator is no longer required.
The runtime application Starlight is ready to be used.
From now on any operator can safely manage the real time data without possibility to interfere with the system configuration.

The Live Data window displays all the real time measurement values; two different display modes are available: 1) An easy to read page containing all measures from a selected load. Related readings are grouped in four separate fields: 3-phase values, averages and peaks, energy counters, phase L1-L2-L3 values.

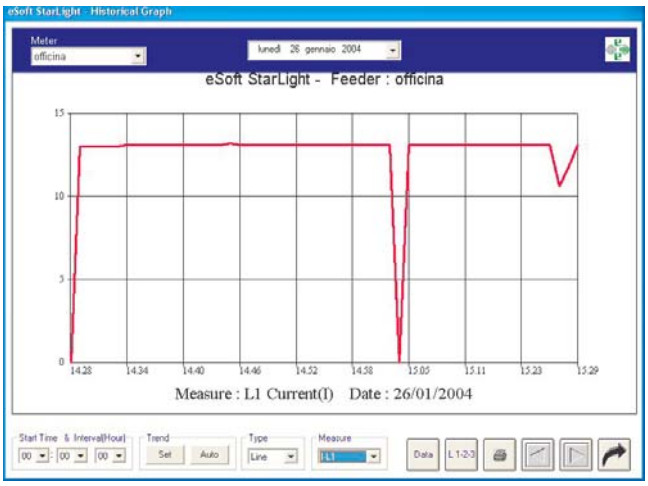


2) A spreadsheet-style table displaying simultaneously 8 instruments and their real time measures on 52 columns.

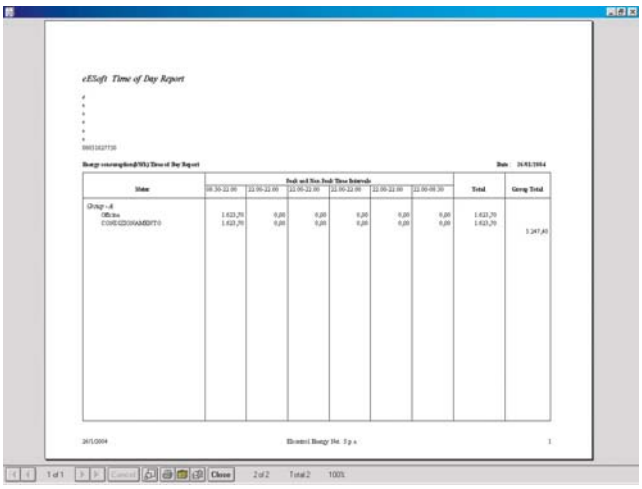
The Live Graph function displays the trend of up to 9 selected values measured from any of load.



Historical Data and Historical Graph: stored data can be displayed both in spreadsheet format or as a graphical trend representation.The same information can be Exported to Excel.



Historical Graph display mode, available for all measures with different graphic stiles



Reports: Starlight includes a powerful and easy to use Report generation utility. Just a few clicks of the mouse are enough to generate numerical and graphical energy consumption reports on flexible, daily, monthly, yearly and tariff bands/time-shifts basis. The report data can be exported to Excel.
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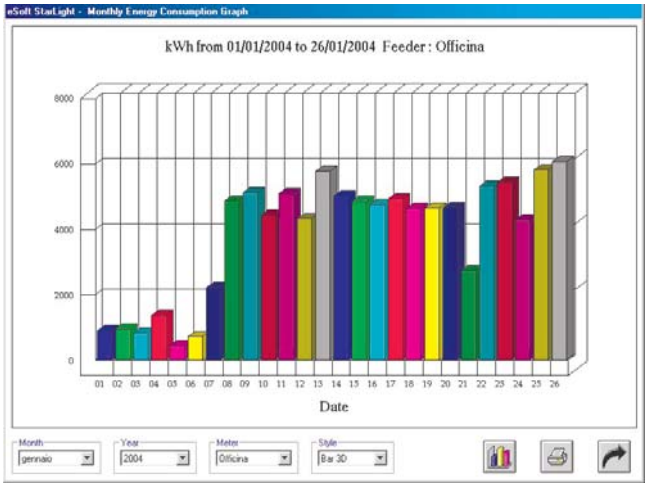

Example of Flexible graphical report. The energy consumption of one department is visible per each single day over the requested period.