



Software
for monitoring and managing
of energy consumption

ENERGY BRAIN[®]



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 **ELECTREX**

the energy saving technology

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Energy brain is software developed to manage the consumption of electricity, other energy sources (gas, water, steam, etc.) and other parameters (e.g. level of illumination, compressed air, temperature, calories, etc.).

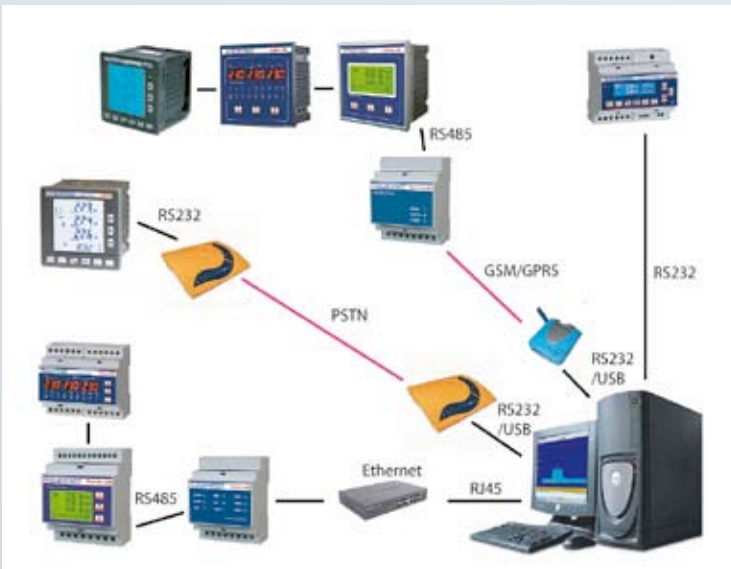
ENERGY BRAIN

Permit to control energy costs also broken down by cost centre. It is the point of departure to define a proper plan for energy saving (social obligation to reduce pollution; structural obligation because the energy demand grows more than energy offer and competitive advantage due to reduction of costs). Allows identifying problems of quality of supply (e.g. peaks or holes of tension, short or long interruptions), malfunctioning in plant (e.g. low power factor, degradation of performance of engines, generation of harmonics).

Energy brain is developed in Java language in order to make it more compatible with different PCs structures with Microsoft © operating systems available on the market. The database software is an Ms Acces© data base, MySQL© and PostgreSQL©.

PRINCIPAL FUNCTIONS

The connection to networks of instruments or to individual instruments may be made in different ways: RS232/USB port with GSM/GPRS modem and Yocto Gate connected to the instruments; analogical PSTN Modem; Ethernet port (also wireless) and Yocto Net connected to the instruments; RS232 with direct connection to individual instruments equipped with RS232 Option. The software is available in Master and Client version.



Configuration:

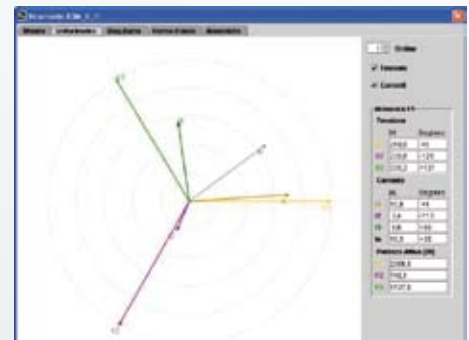
It is the section that allows you to configure the network of meters and transducers that the software must support. The network may be local or remote or a combination of both. The configuration allows defining the identifying data of the location to which it may join one or more counters and also modify the operation parameters of instruments (identified as channels). To each location may be associated different transmission modes with different personalization. The recovery of the data can be manual and/or automatic by defining an agenda for unloading on the time. Entry in the configuration menu can be protected by password.

Data Base:

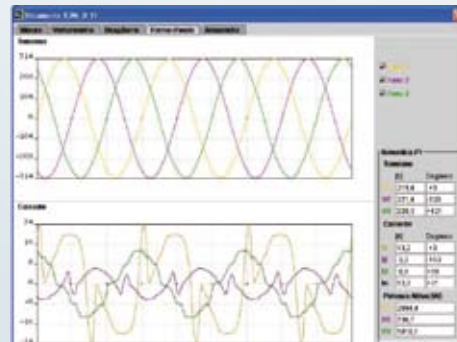
It is the memory in which all the data are stored. The data are collected and stored in the database through a process, which is also the validation of the data. The data are stored in detail that with monthly and annual returns in order to speed up extraction.

ON LINE GRAPHS

Manages the graphs for instruments equipped with the FFT harmonics option. Available when the machines are connected on-line:



Harmonics vector diagram



Waveforms

PROGRAMMABLE GRAPHS

Diagram_name

Asse	Visibile	Etic.	F/S Giorn.	F/S Mens.	F/S Ann.
1	<input checked="" type="checkbox"/>	LUCE - LUX	0,00	0,00	0,00
2	<input checked="" type="checkbox"/>	TEMP - °C	0,00	0,00	0,00
3	<input checked="" type="checkbox"/>	GAS - MC	0,00	0,00	0,00
4	<input checked="" type="checkbox"/>	CALORIE - KCAL	0,00	0,00	0,00

Fondo Scala: 0= Auto-Range

The software allows managing special graphics configurable with different Units of Measurement. This function lets you view measures generated by energy transducers of various sizes (e.g. gas, water, brightness, temperature, humidity, steam, calories, pressure, etc.). Some tools of the Electrex product range are equipped with inputs (or may become with the inputs option) to which it is possible to connect these transducers.

GRAPHS

Allow viewing the curves of daily load or consumption on a monthly basis or annual. The navigation within the database is made simple by buttons and or available from the windows of selection. Some of the graphics available are:

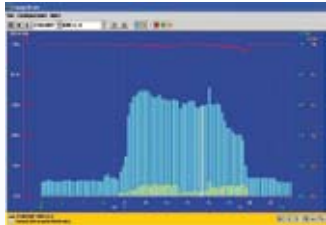


Chart of daily electricity consumption on a 15 minutes basis

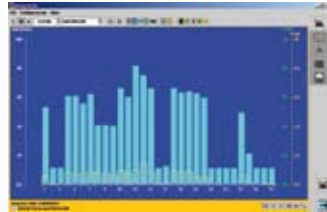


Chart of monthly electricity consumption on a daily basis

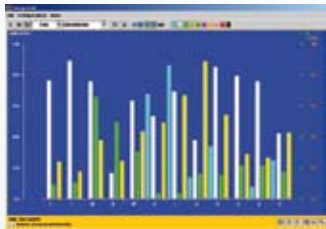
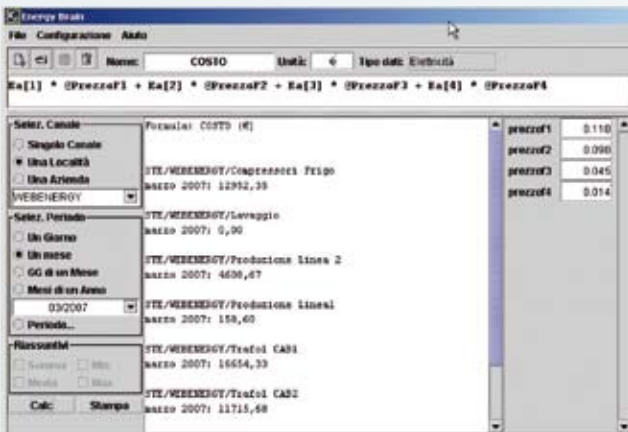


Chart of yearly electricity consumption on a monthly basis

FORMULE

Enable to calculate in automatic consumption, energy costs, both on a daily basis, monthly or annual report and in a period of time at the choice of the customer. Allow also the simulations of cost with different tariff structures to assess the convenience of different suppliers.

One of the more important uses is the allocation of costs for department or for processing, in order to assess the impact on energy costs and identify any waste.



TARIFF STRUCTURES

		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
23/04/07	monday	3	3	3	3	3	3	3	2	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	3
24/04/07	tuesday	3	3	3	3	3	3	3	2	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	3
25/04/07	wednesday	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
26/04/07	thursday	3	3	3	3	3	3	3	2	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	3
27/04/07	friday	3	3	3	3	3	3	3	2	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	3
28/04/07	saturday	3	3	3	3	3	3	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3
29/04/07	sunday	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3

EVENTS

Software Events: are recorded all the operations carried out during the use of the software (e.g. telephone line busy in the case of remote access).

Memory module Events: are shown the events of the memory module automatically downloaded during the data collection. The software lets you view the parameters such as: short breaks, long breaks, voltage peak, etc.

```

10/03/07 08:30:21      Micro-Interruzioni      8 mSec
14/03/07 02:19:32      ***** Lettura e reset :
                          Max V      Max I      Max P
L1 = 237 V      1,16 kA    229 k
L2 = 237 V      1,16 kA    241 k
L3 = 235 V      1,19 kA    236 k

14/03/07 02:19:36      Reset software
16/03/07 16:19:05      Micro-Interruzioni      215 mS
    
```

ENERGY BRAIN COUNTERS



Version of energy brain that generates reports containing the values of the energy meters of all the instruments of any location of the network. Needed for example by administrators that have to be able to download from remote and see the value of the meters of a building, of a port, a hotel, a shopping mall, etc. The generated report may be exported in HTML format and imported in Excel.

ENERGYSITE

The Internet platform ENERGYSITE was developed with the objective for allowing a user, consultants, associations and distributors of the use for provide services for the management and evaluation of the collected energy data (electricity, gas, water, steam, etc.) by Electrex monitoring networks.

This platform allows technical and economic analysis of data. Also, when the monitoring network installed at the user is composed of more instruments, the evaluation of the data can be aimed both to make overall evaluations and manage the costs centre. It was achieved a system that the ease the consultation unite to the convenience of being reached from different points inside and outside the company.



ENERGYSITE Azienda: Demo Zona: Trafel CAB1

Dati orari relativi al giorno martedì 06/02/2007

Data - Ora	Potenza Attiva (kW)	Energia Attiva (kWh)	Energia Reattiva (kVArh)	Fasce
6/2/2007 06:00	312,34	485,90	98,55	3
6/2/2007 07:00	496,85	457,16	93,32	3
6/2/2007 08:00	401,87	381,00	67,04	3
6/2/2007 09:00	315,13	302,15	32,88	3
6/2/2007 10:00	559,91	444,20	154,92	3
6/2/2007 11:00	1.226,84	941,36	463,46	3
6/2/2007 12:00	1.426,84	1.385,32	700,26	3
6/2/2007 13:00	1.468,92	1.447,14	725,96	2
6/2/2007 14:00	1.439,76	1.404,17	707,32	1
6/2/2007 15:00	1.488,48	1.413,70	702,80	1
6/2/2007 16:00	1.556,57	1.490,71	721,81	1

X3M Energy Data Manager (Harmonics)



Digital Energy Data Manager with high brightness display and memory for the analysis and registration of electricity and its quality. Designed for harsh environments and based on firmware upgradable remotely. Universal insertion (mono, BI and three-phase, Star and Triangle, LV and HV) and continuous and contemporary sampling on the three phases. Perennial clock with battery and 2 MByte of non-volatile memory to store up to 255 days (programmable) of data, two fare level calendars (upgraded), measuring campaigns (e.g. harmonics until the 31st, tensions, current), events and other information. Hundreds of measures. In addition to the 2 programmable digital outputs, 2 ports allow expansion with optional modules (rs232, rs485, 2x4-20ma, 2in-2out). Basic version or with harmonics analysis. Size: 6 and 9 DIN guide and 96x96 modules. 3 years warranty.

FLASH (Harmonics)



Digital Energy Data Manager with high brightness display for the analysis and registration of electricity and its quality. Designed for harsh environments and based on firmware upgradable remotely. Universal insertion (mono, bi and three-phase, Star and Triangle, LV and HV) and continuous and contemporary sampling on the three phases. Hundreds readings, like energy, THD, peaks import/export powers, 2-4 quadrant energies (Ea, Er), harmonics until the 31st, etc.. In addition to the 2 programmable digital outputs, 2 ports allow expansion with optional modules (rs232, rs485, 2x4-20ma, 2in-2out). Basic version or with harmonics analysis. Size: 6 and 9 DIN guide and 96x96 modules. 3 years warranty.

FAST (Harmonics)



Transducer and energy analyzer without display and with the same characteristics of the Flash base version. 6 DIN modules size. 3 years warranty.

OPTIONS



Expansion option RS485, RS232, Output 2x4-20mA, 2 digital inputs and 2 relay outputs for X3M, Flash and Fast instruments 6 modules DIN or 96x96 version. 3 years warranty.

X3M H BOX



Portable Energy Data Manager for single-phase and three-phase with neutral with BT measures. Same characteristics of X3M D H (with harmonics analysis). Supplied with RS232 and PC Cable, energy brain 4 software, volt metric and current cables. 3 years warranty.

Split CTs



Split CT series. Huge range from 100A to 2500A with 5A secondary. 1% precision. Patented coupling step system without screws.

Distributor

FEMTO



Energy analyser/meter family with LCD display. Universal insertion (mono, bi and three-phase, Star and Triangle, LV and HV) and continuous and contemporary sampling on three phases. More than 60 measures, including: Max and Min, temperature, import/export, active energy phase, RMS until 31st harmonics. Included RS485 port, version with 1 input and 2 programmable digital outputs. 4 DIN modules, 96x96 and 48x96 size.

ATTO



Transducer and energy analyzer without display and with the same characteristics of the Femto. Port RS485 included. Three version: basic or 2 analogue outputs 4-20mA or 1 digital input and 2 digital outputs. 4 DIN modules size.

ZEPTO



Multimeter, power and energy analyzer with LED display. Universal insertion (mono, BI and three-phase, Star and Triangle, BT and MT) and continuous and contemporary sampling on three phases. Over 50 readings including neutral current, THD-I, THD-U, rolling demand, maximum demand, partial and total active energy (Ea), reactive energy, RMS measure to 31st harmonic. Porta RS485 included. 6 DIN modules and 96x96.

YOCTO FAMILY: NET, NET LOG AND GATE, I-O



Yocto NET is a network bridge that connects one or more of the Electrex instruments in a Modbus network to an Ethernet port. It's possible interrogating him through the Energy Brain software even also through appropriate html pages. Giving a fixed IP address it can be managed through Internet.

Yocto net log adds to the previous characteristics the ability to store the evolution of parameters reads by the instruments and/or by digital and analogue Electrex interfaces.

Yocto gate is a GSM/GPRS gateway with inputs and outputs. Allows interfacing via GSM/GPRS with Electrex tools below, and manages the Modbus alarms and allows transmission of remote commands. Size DIN guide 4 modules.

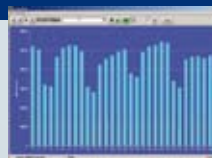
Yocto I-O is a multifunctional Input-Output device for RS485 networks. It is designed to support several simultaneous applications such as: monitoring, detection of alarms, home and building automation

ETTO



Energy meter, single phase, with pulse outputs. Performs a measure with ads direct to 6kw (26A). Size DIN guide 2 modules.

ENERGY BRAIN



Energy brain is a software developed to detect and manage the consumption of electricity, gas, water, steam, lighting, compressed air, temperature, calories, etc. allows to control energy costs also broken down by cost centre. It is the point of departure to define a proper plan for energy savings.

Electrex is an Akse srk trademark

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