



State Of The Art's

ECO WARRIOR

24/7, REAL-TIME
ENERGY SURVEILLANCE



UK ACCREDITATION

- ✔ *An affordable system that typically cuts 10 - 15% off your energy bills*
- ✔ *Real-time monitoring & targeting*
- ✔ *Automated meter reading*
- ✔ *Powerful cost centre allocation and tenant billing*
- ✔ *Provides EPA Audit, ISO 14001 & CO₂ emission data*
- ✔ *Comprehensive but easy to use tariff analysis & bill checking functions*
- ✔ *Realtime electricity power factor monitoring*
- ✔ *Realtime load demand prediction, control and alarms*
- ✔ *Provides environmental auditing data*
- ✔ *Onsite + offsite energy monitoring*
- ✔ *Enables tuning of your BMS & HVAC systems for lowest running costs*
- ✔ *Cost per product/per machine/per shift calculation and machine downtime monitoring for industry*

ECO WARRIOR

is an energy monitoring and targeting system with real-time data viewing. It gathers metered and measured site data to a central point where it displays real-time profiles of energy use and cost. It has load demand prediction with four stages of control/alarms and continuous comparison of actual versus target profiles. Data can be shared between users via networks or over longer distances by land line or radio modems. Consider it your own 24/7 energy surveillance system.

ECO TOOLS

is a single or multi site, environmental auditing system. It uses data gathered by Eco Warrior or other systems to produce a wealth of analytical data suitable for all. With stunning 32 bit graphics, users can set monitoring targets, check energy bills, budget for annual energy expenditure, compare energy tariffs, display multi day/month/year energy profiles, analyze energy and energy cost per product ratios, calculate machine or production downtime, produce tenant bills using actual supplier tariffs, provide simple to use but professional cost centre allocations, cusum charts, linear regression analysis, league tables, multi-site exception reports and much, much more.....

ECO PAD

is a single or multi site productivity / activity database data input system which when linked with Eco Tools monitors energy efficiency ratios (i.e. Kwh/Tonne Product) on a daily, weekly, monthly or annual basis to assist in improving company production efficiency and enable companies to maintain compliance with climate change levy requirements.

ECO WEB / COMMS

are software utilities to automatically send energy data and critical site events e.g. "energy target exceeded" to another location which could be across an industrial site or across the world. The system will operate on a "one to one" basis or a thousand to one. It uses either your network email, the internet or a fast standard modem that shares a phone line with other users to reduce operational costs.

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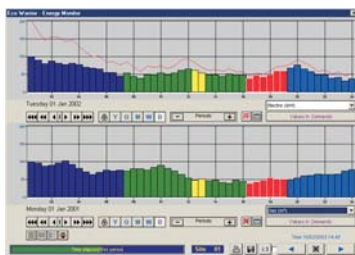


24 / 7 ENERGY SURVEILLANCE

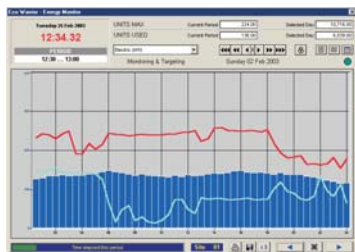
EXAMPLE REAL-TIME ON-SITE VIEWS



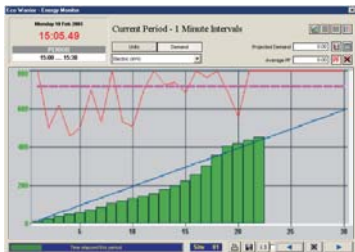
CURRENT HALF HOUR INFORMATION AND PREVIOUS DAY, WEEK, MONTH YEAR CHECK DISPLAYS.



ANNUAL, QUARTERLY, MONTHLY, WEEKLY, DAILY, HALF HOURLY ENERGY AND COSTS DISPLAY.



MONITORING AND TARGETING SCREEN SHOWING HALF HOURLY MAXIMUM AND MINIMUM ALLOWABLE VALUES.



HALF HOURLY DEMAND PROJECTION WITH LOAD MANAGEMENT FACILITY



DAILY Min/Max TEMPERATURE DISPLAY & COMPLETE HISTORY FOR YOUR OWN DEGREE DAY (or Degree 30 minute) DATA

ECO WARRIOR

The Eco Warrior system operates on a personal computer or industrial workstation. It monitors pulses provided by Energy and Utility Companies from their primary meters or from the customers own sub-meters for electricity, gas and water.

Other sources such as optical devices and analogue sensors can also be used.

Meter readings can be added, subtracted or have calculations performed on them, creating additional "virtual" meters to display critical parameters. The software provides, as standard, one virtual meter for each channel purchased. There is a maximum of sixty-four "virtual" meters for 64 and higher channel systems per workstation.

The software presents, in graphical and text form, a real-time display of each energy meter, real or virtual, with a forecast of use over the next measuring period (typically half an hour) and 24 hours.

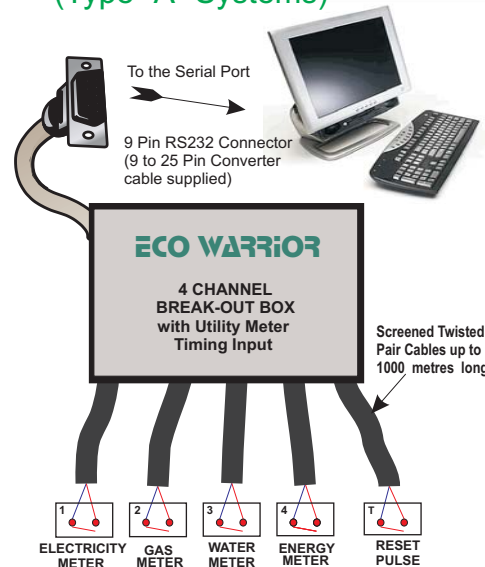
A four stage demand alarm and control option is available for automated or manual load control.

Type "A" systems take pulses directly into the PC serial port via a break out box as shown in the Type "A" systems diagram on the right. One break out box is required for every 4 channels to be connected. The meters are connected via low voltage, shielded twisted pair cables to the break out boxes. Each cable can be up to 1000 metres long.

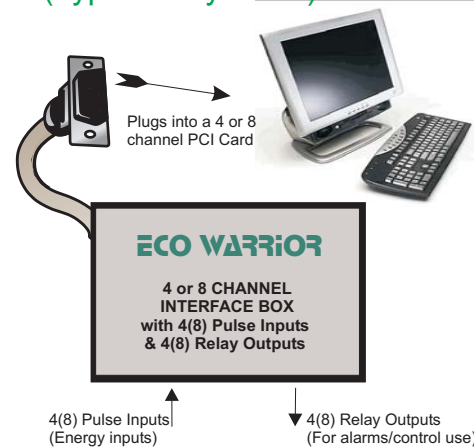
The Type "B" systems use 4 or 8 channel PCI Cards mounted in the computer instead of the serial ports. An additional advantage of this approach is that the same number of output relays is also provided for use as Max Demand alarms or local or remote load control, now or in the future. (Note that the Remote Control software option is needed if the alarm or load control function is required.)

The Interface Box provides the interface between the PCI Card & the field connections. All versions have the facility to calculate and display real-time power factor and temperature measurements, with the addition of two low cost temperature sensors.

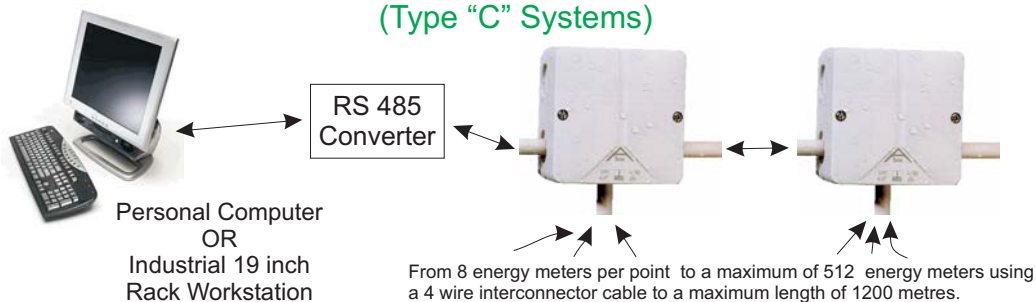
4, 8 and 16 Channel (Type "A" Systems)



4, 8 and 16 Channel (Type "B" Systems)



8, 16, 32, 64, 128, 192, 256 & 512+ Channel (Type "C" Systems)



In Type "C" systems, remote pulse input, data concentrators are daisy chained together via an RS485 single low cost cable back to the RS485 to RS232converter. This can considerably reduce cabling costs if your energy meters are not all grouped in one place. It also allows expansion onsite to an almost infinite number of meters.

Each workstation can be interconnected via local area networks, 2.4/5ghz radio networks, Intranets, InterNet, modem and telephone line or GSM modem.

Each data collector has a unique address and is interrogated every second by the system. This provides real-time information and demand alarms continuously, unlike some systems which claim to be real-time but are not.

Low cost, off the shelf software, can also be used on any of the above systems to remote control and view multiple workstations across the network, internet or intranet in real-time. Each workstation appears in its own window on the PC screen allowing the viewing and control of as many work units as is practical with the size of screen used. Energy data can also be sent across these networks in various formats and at pre-defined times to Eco Tools and other systems not requiring real-time data.