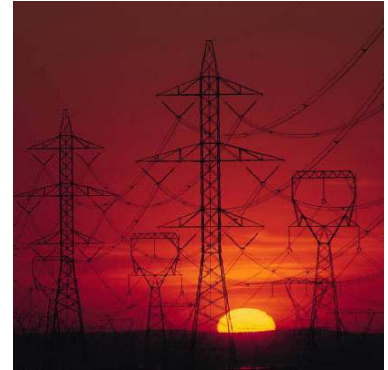


Metering & Monitoring

Monitoring continues to be the first significant step on any serious cost saving initiative. The Climate Change Levy and Part L2 of the Building Regulations have both focused attention on to energy monitoring for this reason.

Further savings using monitoring can be achieved by reducing disruption and downtime due to power quality problems, as defined in the standard BS EN 50160:2000, with an almost instantaneous return on investment often possible.

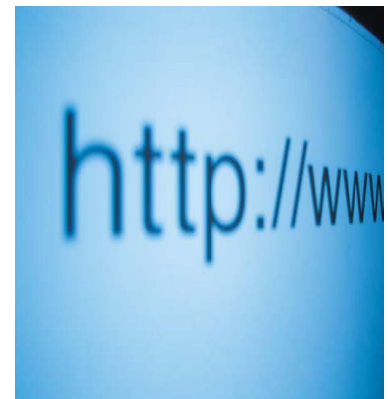
We offer our customers the benefit of our considerable experience in providing bespoke, cost effective metering and monitoring solutions. Our solutions are based upon equipment from leading manufacturers including Circutor, for whom we are the exclusive agent for the UK.



Our capabilities

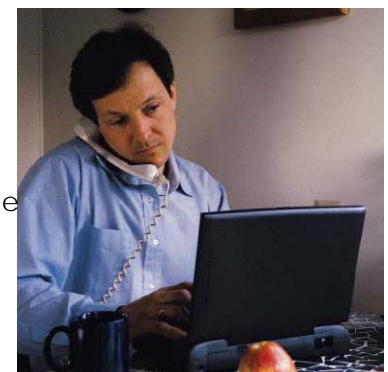
We can provide complete solutions comprising one or more of the following:

- ⇒ Electrical Energy and Multi-function Power Meters
- ⇒ Analogue and Digital Instrumentation
- ⇒ Automatic Monitoring & Targeting (aM&T) Systems with Alarms
- ⇒ Power Quality Analysers – Fixed and Portable
- ⇒ Electrical Network Management Systems
- ⇒ Web Accessible Monitoring Systems
- ⇒ Radio, GPRS and SMS Text Based Remote Monitoring Systems
- ⇒ Current Transformers and Measurement Transducers
- ⇒ Standard and Self-reclosing Earth Leakage Protection



Typical applications

- ⇒ Identifying energy saving opportunities
- ⇒ Tenant billing
- ⇒ Improving Energy Performance Certificate rating
- ⇒ Allocating energy costs to departments or products
- ⇒ Maintaining CCA discounts for energy used in production
- ⇒ Receiving advanced warning to prevent disruption and downtime
- ⇒ Diagnosing Power Quality issues
- ⇒ Remotely managing the electrical network
- ⇒ Reducing design and maintenance costs
- ⇒ Reducing disruption due to earth leakage protection trips



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Analogue Instruments

- ⇒ Volts, amps, Hz, kW, kVAr, cos ϕ , hours run and ohm meters
- ⇒ Process indicators with analogue inputs
- ⇒ Synchronoscopes and synchronism relays for generators
- ⇒ 90°, 240° or 360° scales with wide selection of ranges
- ⇒ Single or double pointer displays, some with phase selector
- ⇒ DIN rail or panel mount (48 mm, 72 mm, 96 mm or 144 mm)



Digital Instruments & Measurement Transducers

- ⇒ Display volts, amps, Hz, kW, kVAr, PF or °C
- ⇒ Indicators for earth leakage, amp-hours or pulses
- ⇒ Expansion modules for analogue or digital outputs
- ⇒ Optional ModBus communications
- ⇒ Compatible with monitoring software
- ⇒ Transducers for volts, amps, Hz, kW, kVAr, PF, cos ϕ , THD or ohms



Energy (kWh) Meters

- ⇒ Single or three phase
- ⇒ Direct connect up to 120 A
- ⇒ External CT input for any larger load
- ⇒ DIN rail or panel mount (96 x 96 mm)
- ⇒ Pulse output for remote monitoring
- ⇒ Can be interfaced into monitoring software



Pulse/Digital Input Interfaces & Data Loggers

- ⇒ Single or three phase
- ⇒ Interface up to 50 pulse outputs from energy meters
- ⇒ Monitor digital inputs for status or alarms
- ⇒ DIN rail mount
- ⇒ 230 Vac powered
- ⇒ ModBus (Ethernet TCP/IP or serial) communications
- ⇒ Compatible with monitoring software



Multi-function Meters

- ⇒ Display volts, amps, kW, kVAr, kVA, kWh, PF, Hz & THD
- ⇒ DIN rail or panel mount (96 x 96 mm)
- ⇒ True rms measurement
- ⇒ Optional harmonic analysis
- ⇒ Configurable pulse/alarm output(s)
- ⇒ ModBus communications
- ⇒ Compatible with monitoring software



Power Quality Analysers

- ⇒ QNA 412 - certified to IEC 61000-4-30 Class A
- ⇒ Fixed or portable options
- ⇒ Onboard memory up to 4MB
- ⇒ Harmonic analysis to 50th order
- ⇒ Record supply voltage dips, swells and interruptions
- ⇒ Flicker measurement
- ⇒ Compare supply voltage to EN 50160 standard
- ⇒ Up to 4 hour battery backup
- ⇒ Free! Power Quality analysis software



Portable System Analysers

- ⇒ Monitor volts, amps, kW, kVAr, kVA, kWh, PF, Hz & THD
- ⇒ Harmonic current and voltage analysis to 50th order
- ⇒ Optional voltage disturbance recording
- ⇒ Clamp-on or flexible current clamps
- ⇒ Onboard memory of 1MB
- ⇒ Simple to use
- ⇒ Free! Power Quality analysis software



Energy & Power Monitoring Systems

- ⇒ Automatic Monitoring & Targeting (aM&T) software
- ⇒ Electrical Network Management software
- ⇒ Single display "meter-less" systems for LV switchboards
- ⇒ Web server for licence-free, multi-user remote access
- ⇒ Many compatible devices
- ⇒ Graphical trends, tables and energy reports
- ⇒ Instantaneous and historical information



Current Transformers

- ⇒ Moulded case, split-core, multi-ratio and summation
- ⇒ Primary currents from 40 A up to 5000 A
- ⇒ Accuracies up to 0.2 S
- ⇒ 5 A, 1 A or 4-20 mA outputs available
- ⇒ Optional DIN rail mount kits



Communications Devices

- ⇒ RS-485/232 to Ethernet TCP/IP converters
- ⇒ RS-485 to RS-232 converters
- ⇒ RS-485 to USB or RS-232 to USB converters
- ⇒ Low-power radio and GPRS modem



Industrial Earth Leakage Protection

- ⇒ Transformers from 20 mm to 210 mm diameter section
- ⇒ Separate relays or transformers with built-in relays
- ⇒ Residual current displays
- ⇒ Multiple relay devices with 4 or 8 inputs
- ⇒ True rms measurement
- ⇒ Immunised against transients



Self-reclosing Overcurrent & Earth Leakage Protection

- ⇒ Motorized self-reclosing action
- ⇒ Removes need for manual intervention in most cases
- ⇒ Reduces unnecessary downtime of critical equipment
- ⇒ Full protection maintained during fault conditions



Transient Surge Protection

- ⇒ Single or three phase, DIN rail mount
- ⇒ Protection against surges defined by IEC 61643-1
- ⇒ 40 kA rated option for main switchboards
- ⇒ 15 kA rated option for sub-distribution boards

