

Solutions for  
**Electrical energy  
efficiency**



*Technology for energy efficiency*

# Electrical energy efficiency

## ¿What is the Electrical energy efficiency?

To reduce electrical power and energy required from the electric power systems without affecting the usual activities carried out in a building, or distribution process.

## Why is it necessary?

Because to reduce apparent power (kV·A) and energy (kW·h, kvar·h) required from electrical system allows:

- To assist the sustainability of the economic system and the environment
- To improve the technical management of the installations by optimizing their performance (decreasing energy demand) and avoiding downtime and breakdowns (leakage control and filtering)
- To reduce, therefore, the financial cost of running installations and processes.

## How to do it?

Using the **CIRCUTOR's** efficient formula:

$$M + P + Q + R + V =$$

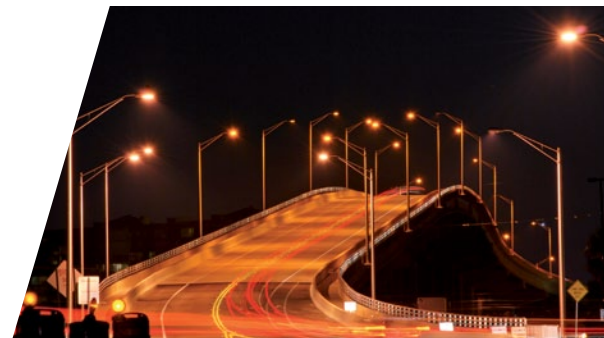

**M** *Measurement and Control*

**P** *Protection and Control*

**Q** *Quality & Metering*

**R** *Power Factor correction and Harmonic filtering*

**V** *Smart Charge of Electrical Vehicles*





# CIRCUTOR's Energy Management System

**Power**studio  
circutor.com  
S C A D A

Energy Management Software

## Energy audits

- Energy and technical diagnosis of installations

## Contracting management

- Supplies management
- Contract management
- Global energy ratio

## Measuring and Verification EMS

### Measuring of variables

- Control of energy supplies
- Integration of critical variables
- Ascertaining base line
- Energy Balance
- Consumption ratios
- Verification of savings

### Remote management

- Remote control of distributed centres
- Energy control and management

### Efficiency indicator

- Reference index
- Telemanagement
- Energy control and management

## Demand management

- Acting on loads
- Power Factor correction and Harmonic filtering

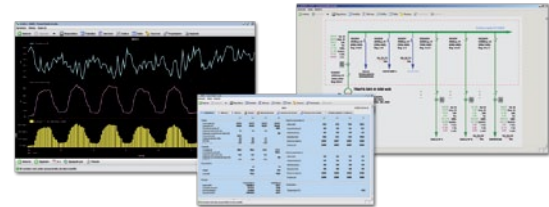
## Improved productivity

### Production costs

- Proper allocation of costs
- Energy and production ratios

### Maintenance

- Quality & Metering
- Continuity of the service
- Technical management and disturbances control



Portable analyzers

Multifunction  
Meters

Variables measuring

Remote  
management

Efficiency  
indicator

Power Analyzers

Efficiency  
Data  
Server

Efficiency  
indicator  
system

Energy meters

Concentrators

Transformers

Accessories

Acting on loads

Power Factor  
correction

Power  
Control

Capacitor Banks with or  
without harmonic filters

Power Quality  
measurement

Control of  
leakage  
currents

Technical  
management

Power Network  
Analyzers

Earth-leakage  
relays

Active filters  
EMC Filters

Continuity of the service

Earth leakage relays with  
self-reclosing systems



## Energy audits

CIR-e3



AR5-L



AR6



## Contracting management

CIRWATT B Single-phase



CIRWATT B Three-phase



PLC 800



## Measuring of variables and Control of leakage currents

Ø standard as current switch



MP3 / MP4



Measurement equipment and current transformers in one unit.



Expandable by modules:



Available for: MP-3: 250 A, 400 A and 630 A MP-4: 250 A, 400 A and 630 A

## Remote management / Demand management



EDS / EDS-3G



## Measuring of variables

CVMk2



CVM NGR96



CVM MINI



CVM NET



CVM-1D



EMC-30



EDMk



MKD



## Concentrators

CVM-NET-4



LM50-TCP+



LM 4A-2IO-M



LM 4I-4O-M



LM 24-M



## Demand management

### STD / PLUS



Opt.  
**RS 485**

Automatic capacitor bank with contacts

### EMS / EMK



Opt.  
**RS 485**

Automatic capacitor bank with static system

### FR / FRE



Opt.  
**RS 485**

Automatic capacitor bank with detuned filters

## Control of leakage currents and continuity of the service

### Toroidal WGC Series



Ø 25 mm, Ø 35 mm, Ø 55 mm,  
Ø 80 mm, Ø 110 mm, Ø 140 mm.  
220 x 105 mm, 350 x 150 mm,  
500 x 200 mm.

### RGU-10



Compatible:  
RGU-10 with WGC  
RN-10 with WN



### WRU-10



### REC2

Protection and earth leakage reclosing systems



Available in:  
30 mA or 300 mA  
REC 2 - 4 poles



### RGU-10 RAL



Protection and earth leakage reclosing



### RGU-10 MT



Protection, earth leakage and circuit breaker reclosing



### CBS 4



Earth leakage station



Electrical energy efficiency





## Improvement of productivity

### QNA 412



Power  
Quality  
Network  
Analyzer



### SGE QNA 500

Power Quality Network Analyzer  
with modular system



### AFQ



Active multi-function filter

### LCL



Harmonic filters for converters

## Transformers and accessories

### MC1 (.../250 mV)



MC1-20	MC1-30	MC1-55
Ø 20 mm 150/200 /250 A	Ø 30 mm 250/400 /500 A	Ø 55 1500/1000 /500 A

### MC3 (.../250 mV)



MC3-63	MC3-125	MC3-250
Ø 7,1 mm 63 A	Ø 14,6 mm 125 A	Ø 26 250 A

### TC / TCH / TP (.../5A, .../1 A Opt.)



TC	TCH	TP
Narrow profile	High precision	Split core
From 50 A to 4,000 A		

### TCP2RS+



Converter from RS-232 or  
RS-485 to Ethernet: TCP/IP.

### CAMO



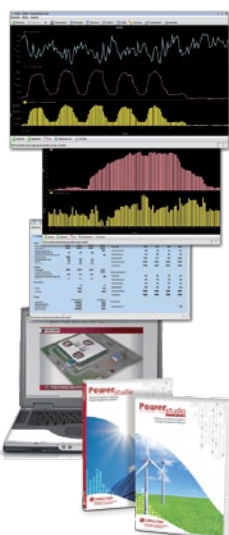
Converter / amplifier  
RS-232 - RS-485

### USB / RS-232 / RS-485



Converter from USB to  
RS-232 or RS-485.

## Energy Management Software



**Powerstudio**  
circuitor.com SCADA

Energy supervision software for buildings and industrial installations, with the possibility of viewing reports, layouts and single-line diagrams. The main functions are the following:

- Creation of historical data
- Ascertaining the base lines
- Management of energy costs
- Energy balances
- Energy consumption ratios
- Consumption reports
- Table of alarms
- Power Quality Management
- Open system compatible with another equipment and SCADA in the market
- Analysis and management of technical variables
- Energy ratio / unit of production ratio
- Cost / production ratio reports
- **Essential tool for UNE 16001 / ISO 50001 certification. See detailed brochure.**



More information of products at: [www.circuitor.com](http://www.circuitor.com)

# Solutions for **Electrical energy efficiency**

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**[www.circutor.com](http://www.circutor.com)**



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