m.9
Energy management software
### M9 - Software de gestión energética

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Energy management software

Nowadays, companies and industries are interested in more than controlling the consumption of energy in their installations. They also need a centralised system to control the entire installation, so that it can be adequately managed and maintained.

CIRCUTOR has the solutions: PowerStudio and PowerVision Plus. PowerStudio displays the instantaneous values of all CIRCUTOR units in real time and stores the historical data on a PC for subsequent analysis. PowerVision Plus also enables the data stored in devices with internal memory to be downloaded.

Applications

Applications with PowerStudio and PowerStudio SCADA:
- Record for historical analysis of consumption
- Billing simulation
- Creation of energy reports
- Installation control for electrical energy efficiency
- Consumption level control for cost allocation
- Control and supervision for maintenance staff
- Control and supervision of continuity of service
- Display for analysis of data registered in portable equipment
**Energy Management Software**

**PowerStudio**

Energy supervision and preventive maintenance of lines and electric installations (unlimited version of PowerStudio SCADA)

Drivers for CIRCUITOR devices

CVMk2, CVM MINI, CVM NRG96, CVM 1D, CVM 96, CVM 144, CVM BC, CVM BD, CVMk, CVMk-HAR, CVM NET, CVM NET4, CVM R8, CVM SP, DH96, EDMk, MKD, MK, MP3, MP4, PowerNet, TR8, TR16, CIRWATT, LM24-M, LM50, LM4-I/O, LM4A-2IO-M, RGU-10, CBS-4, CBS-8, CDR-8, RRM-C, QNA, computer 14D, computer PLUS, computer SMART, IP CAMERA, EDS, R440-TCP

**Description**

This software enables users to monitor the installation and to obtain real time, firsthand information about the status of power lines and even general consumption of the installation in both low and medium voltage. This supervision is important because it provides accurate information about the status of the electrical installation, essential for taking correct decisions. Depending on the features of the appliances installed, a large number of electrical parameters and processes can be monitored.

**Application**

- Remote parameterisation of the equipment
- Real-time display of parameters
- Historical record
- Display of historical records with tables and graphics
- Printing graphics and tables
- Multi-position Software (Web server) through static screens
- Built-in XML server
- Great versatility and very simple use
- Internet access with password and option to create access profiles
- OPC server options and SQL Data Export with the corresponding module

**Examples**

- Screen showing real-time data
- Screen showing historical data with tables and graphics

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<td>PowerStudio</td>
<td>M90211</td>
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Software

PowerStudio SCADA

Energy supervision, preventive maintenance of electric lines and installations and allocation of departmental or production process costs.

Drivers for CIRCUTOR devices

CVMk2, CVM MINI, CVM NRG96, CVM 1D, CVM 96, CVM 144, CVM BC, CVM BD, CVMk, CVMk-HAR, CVM NET, CVM NET4, CVM R8, CVM SP, DH96, EDMk, MKD, MK, MP3, MP4, PowerNet, TR8, TR16, CIRWATT, LM24-M, LM50, LM4-I/O, LM4A-210-M, RGU-10, CBS-4, CBS-8, CDR-8, RRM-C, QNA, computer 14D, computer PLUS, computer SMART, IP CAMERA, EDS, R440-TCP

Description

Due to the diversity and number of devices making up an installation, which may also be interconnected, it is important to be able to see and update different parameters of different devices on a single screen at the same time. PowerStudio SCADA is designed to allow any user to create their own customised screens and reports to according to their needs.

PowerStudio SCADA is software that processes data obtained from devices to create reports, with the purpose of adopting the adequate corrective or preventive measures during the installation.

All in all, this software enables the integration of CIRCUTOR’s equipment for its management, such as the CVM power analyzers, multifunction energy meters CIRWATT, protection devices, signal processing equipment, automatic load control by relays.

PowerStudio SCADA has an XML server which adapts perfectly to modern internet technology.

PowerStudio SCADA also offers the possibility of adding an OPC server or an SQL Data Export by way of the corresponding modules.

Examples
Remote parameterisation of equipment:

It enables the parameters of all units connected to be set on-line, thus facilitating the configuration of all units from the PC or control unit.

The following can be programmed with the PowerStudio SCADA:

- Voltage and current transformation ratios.
- Digital inputs and outputs and analogue outputs.
- Trigger ratios of protection devices and their reclosing system configurations

Display of parameters in real time:

It displays the parameters of all units in real time, knowing the installation's behaviour and status of the electrical distribution lines of the installation at all times. Said communications are possible, since PowerStudio SCADA is in constant communication with the units (pulling).

Data can be displayed in digital (number) or analogue (bars) format, indicating the colours (red, orange, green) of the variables that are outside the programmed limits (correct, pre-alarm, etc.)

Record log:

The record log is created automatically. Users need not configure options other than in the storage period to start the log, because after adding the device(s) to the software, PowerStudio SCADA automatically starts recording all the electric parameters from the different CIRCUTOR devices.

Display of logs on tables or graphics

PowerStudio SCADA records all of the parameters mentioned above to generate graphics and tables with the different electrical parameters, grouped in accordance with the customer's needs (day, week or month).

This information is used to display the evolution of any electrical or process parameter in time, also displaying the increase of a variable totalled over time (energy).

The user can print any graphic or table generated by the software.

Alarm module:

The previous programming tasks are used by the user to display any incident in the installation in real time.

Alarms can be associated easily to any parameter available in the PowerStudio SCADA, such as electrical or process parameters. The alarm module guarantees the optimal efficiency of the installation's preventive maintenance tasks. Loads are controlled in different time bands using relay devices.

Multi-position Software (Integrated Web Server)

The internal software web server of PowerStudio SCADA can be used by any user connected to the corporate network (LAN) or any Internet connection (if the router used for the connection by the company, factory, etc. is connected. The relationship between the public IP and the private IP can display the data log or data in real time, which will be updated permanently.

Screens are dynamic, so that the web client can display all data in real time, as in the case of the master server.

The number of web users that can connect to the server is unlimited; and PowerStudio SCADA allows the generation of users limiting the display for XML integration (relocated integration).

Integrated XML server

PowerStudio SCADA features tools specialising in the exchange of dynamic data, for the integration of the energy supervision tasks within a global control system, which contains communications servers for the integration of XML (relocated integration).
**Features**

**Construction of customised screens**

*PowerStudio SCADA* can be used to create customised screens. Therefore, we can fix the parameter or status display labels, which monitor a specific point of the installation or the status of a line.

The number of screens which can be implemented is unlimited, so we can customise display screens in sectors, displaying a specific point of the installation in each case.

**Force variables (remote control)**

Allows remote control of charges and forcing variables *PowerStudio SCADA* via XML tranches. Enables remote control of equipment and acts on charges.

**Generator of reports and receipt simulator**

*PowerStudio SCADA* has a very powerful module that can be used to generate reports and simulate receipts. It can be used to create billing calendars, programming the following: types of hour, types of day, billing calendars and calculation of costs.

This module is used to design a summary report with any variable obtained and recorded by *PowerStudio SCADA*. It implements energy consumption in a determined period of time, summary of events or incidents in the grid.

The reports can be customised to user needs in each case and mathematical functions can even be applied to the variables obtained, for the purpose of obtaining production ratios or to check the consumption of electrical bills issued.

All in all, *PowerStudio SCADA* is a highly versatile and easy-to-use software. In this case, Scada applications can be created without the need to have programming knowledge, since the user interface is simple and intuitive.
Software

PowerStudio SCADA

Energy supervision, preventive maintenance of electric lines and installations and allocation of departmental or production process costs.

Additional information

DYNAMIC DATA EXCHANGE

PowerStudio SCADA, is not only an excellent energy manager, but it also has a series of data exchange functions implemented, facilitating the quick and comfortable integration of the system with other market applications.

XML Integration

At times, integrators have various external applications that need to read the data from the same peripheral device remotely. This is a serious problem, since the units with RS-485 communications can only be queried by a single master. When there is more than one, there are collisions in the communications and no application receives the information correctly.

The XML communication protocol solves this problem; the only requirement is that the IP address of the slave application or data server can be accessed. With this format we can request any electrical or physical parameter of the PowerStudio SCADA in real time, integrating many different electrical or physical parameters in one or various PowerStudio SCADA systems installed in the same network, even on accessible external grids (decentralised energy control systems). In other words, enabling communication between software, via LAN or the Internet.

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<td>PowerStudio SCADA</td>
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<td>HASP license, parallel</td>
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<td>PowerStudio SCADA</td>
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<td>HASP license, USB</td>
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**PowerStudio SCADA DELUXE**

Energy supervision, maintenance, allocation of costs, with CIRCUTOR’s equipment and other equipment with Modbus communications.

**Features**

As well as all the features offered by Power Studio SCADA, the DELUXE version aims to cover devices with standard connections. The Power Studio Scada Deluxe version, as well as incorporating all the CIRCUTOR drivers, features generic connections, with the aim of being able to communicate with other devices that respond to the Modbus RTU or Modbus TCP protocol through a generic UDP, TCP connection or, in consequence, Modbus TCP.

As well as being able to establish such connections, it can program the memory map of any device on the market with Modbus communications through the generic driver assistant. In other words, the user can define the registers desired from the Modbus equipment one by one, thus defining a new driver adapted to the application’s needs.

Both numerical and binary variables can be configured in the generic Modbus driver.

Once the registers are entered in the Modbus driver, said variables can be registered as historical records and can be used to create SCADA monitoring screens, generate tables and graphics, parameterise alarms and implement customised reports.

Once the variables are integrated in the system, they can be exported to other systems via XML and even through OPC with the additional OPC Server module or the data rate of PowerStudio SCADA Deluxe can be converted to SQL with SQL Data Export.

**Drivers for CIRCUTOR devices**

CVMk2, CVM MINI, CVM NRG96, CVM 1D, CVM 96, CVM 144, CVM BC, CVM BD, CVMk, CVMk-HAR, CVM NET, CVM NET4, CVM R8, CVM SP, DH96, EDMk, MKD, MK, MP3, MP4, PowerNet, TR8, TR16, CIWATT, LM24-M, LM50, LM4-I/O, LM4A-2IO-M, RGU-10, CBS-4, CBS-8, CDR-8, RRMC, QNA, computer 14D, computer PLUS, computer SMART, IP CAMERA, EDS, R440-TCP, generic MODBUS.

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<td>PowerStudio Scada DELUXE</td>
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Software

**OPC-DA**

**PS/PSS/PSSD**

Integration of CIRCUITOR units with other market software

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**Features**

Much of the time, the data collected by the **Power Studio / Scada / Deluxe** software is designed to integrate in a global management SCADA where, as well as integrating electrical parameters, other magnitudes necessary to control a building, industry or intervention are involved. Therefore, since the most generic SCADAs in the market use OPC communications, an OPC Server has been designed with the purpose of integrating the data in external control systems.

The operating system takes into account the implementation of **Power Studio / Scada / Deluxe**, with the purpose of including the data in the system. With this reading, **OPC Server** (which can be installed on the same unit or any other unit with IP accessibility) acquires the data and serves it in the OPC format to an external application. The OPC implemented is of the DA type, therefore the data that can be served is real-time data.

Possible network topologies can be very diverse, thanks to the versatility of the connections of **Power Studio Scada**.

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<td>OPC Server</td>
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<td>PowerStudio / PowerStudio Scada</td>
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SQL Data Export for PS/PSS/PSSD is a software tool for integrating PS/PSS/PSSD data into a new or existing SQL type database. With SQL Data Export the user can integrate, by SQL queries, the data from field equipment connected to the supervision system.

SQL Data Export connects to the PS/PSS/PSSD system by means of an IP connection, thereby facilitating the installation of the SQL export software in the most appropriate computer for the consulting or data integration project.

- Export of historical data in PS/PSS/PSSD to SQL type databases.
- Option of selecting devices or databases to be exported
- Programming the discharge frequency
- Multiple architectures

### References

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<td>SQL Data Export</td>
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<td>PowerStudio / PowerStudio Scada</td>
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PowerVision

Configuration, reading and display of files from portable equipment or with memory

**Drivers**

AR5, AR5-L, CVM BDM, QNA, CPL, AR6, CIR-e3, CIR-eQ

**Description**

PowerVision is used for remote control and metering of the information recorded by CIRCUTOR portable equipment and for QNA electrical power supply quality control.

It is a high-performance tool that enhances the power of the information recorded by the units.

PowerVision can be used by expert and novice users to quickly and easily optimise the performance of the data.

PowerVision is a very simple, flexible and powerful tool.

**Features**

- Download by communication of information recorded by the portable equipment AR5, AR5-L, AR6, CIR-e3, CIR-eQ.
- Remote download with time programming of special equipment such as QNA and CVM-BDM.
- Automatic calculation of files, applying the EN-50160 Standard or other standards defined by the user.
- Optional application of filters to harmonic graphics, comparing them with the EN 50160 standard or other levels defined by the user.
- Automatic creation of power supply quality report.
- Analysis of the disturbances file with optional filters AR5 and AR5-L and AR6.

**Communications**

This program allows the user to configure the unit locally (RS-232) or remotely (RS-485, MODEM RTC, GSM, ETHERNET), while displaying the information measured by the unit in real time and downloading it automatically, indicating the time periods (day and hour) when the information will be downloaded, in addition to a manual download at any given moment.

The automatic download of information allows the user to choose which files will be downloaded and when they will be downloaded. Therefore, it is not necessary to waste time connecting to one or more units, since the program is responsible for downloading the information automatically from the units selected by the user.

**Information Management**

- Display of graphics and lists of all variables.
- Export of information to .txt files for subsequent use in any type of spreadsheet.
- Presentation of graphical and/or numerical presentation of the results.
- Printout of analysis.
- Export of graphics and tables to *.bmp*.
- Graphical study or analysis of the tables of data obtained by the unit.
- Temporary evolution graphics.
- Configurable graphics: colour, type of graphic (bar, lines, points or areas), etc.
PowerVision

Configuration, reading and display of files of units with memory

This program allows the user to configure the unit locally (RS-232) or remotely (RS-485, MODEM RTC, GSM, ETHERNET), while displaying the information measured by the unit in real time and downloading it automatically, indicating the time periods (day and hour) when the information will be downloaded, in addition to a manual download at any given moment.

The automatic download of information allows the user to choose which files will be downloaded and when they will be downloaded. Therefore, it is not necessary to waste time connecting to one or more units, since the program is responsible for downloading the information automatically from the units selected by the user.

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**Energy Management Software**

**PowerVision Plus**

Configuration, reading and display of files of units with memory

**Drivers**

AR5, AR5-L, CVM BDM, CVMk2 Ethernet, CAVA, QNA, AR6, CIR-e3, CIR-e2

**Features**

- Download in local mode by communication of data recorded by portable equipment or fixed equipment with memory.
- Download in remote mode with time programming of special equipment such as the QNA and CVM-BDM.
- Automatic calculation of files, applying the EN-50160 standard or other levels defined by the user.
- Optional application of filters to harmonic graphics, comparing them with the EN-50160 standard or other levels defined by the user.
- Automatic creation of power supply quality report.
- Analysis of the disturbances file with optional filter for the AR5 and AR5-L and AR6 equipment.
- Tool for generating reports

**Communications**

This program allows the user to configure the unit locally (RS-232) or remotely (RS-485, MODEM RTC, GSM, ETHERNET), while displaying the information measured by the unit in real time and downloading it automatically, indicating the time periods (day and hour) when the information will be downloaded, in addition to a manual download at any given moment.

The automatic download of information allows the user to choose which files will be downloaded and when they will be downloaded. Therefore, it is not necessary to waste time connecting to one or more units, since the program is responsible for downloading the information automatically from the units selected by the user.

**Information Management**

- Display of graphics and lists of all variables
- Export of information to .txt files and “.csv” files for subsequent use in any type of spreadsheet.
- Graphical and/or numerical presentation of the results
- Printout of analysis results
- Export of graphics and tables to “.png”
- Graphical study or analysis of the tables of data obtained by the unit
- Temporary evolution graphics
- Configurable graphics: colour, type of graphic (bar, lines, points or areas), etc.
- Generates reports that automatically amplify established or user-defined standards to the recordings made.
Software

PowerVision Plus

Configuration, reading and display of files of units with memory

Graphics

PowerVision Plus is a very powerful graphic tool that allows the user to see the information desired in graphic format (bar, lines or areas).

There is an option to change the appearance, colour, thickness and background colour so that the information and images generated are displayed correctly on the screen.

The graphic display (and tables) have a calendar that allows the user to access the information desired in a time interval that is defined directly.

Examples

Generation of quality event tables

Customised graphic display

Report generation and quality control tool

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<td>Power Vision Plus</td>
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Analysis of downloaded data through graphics (and tables)