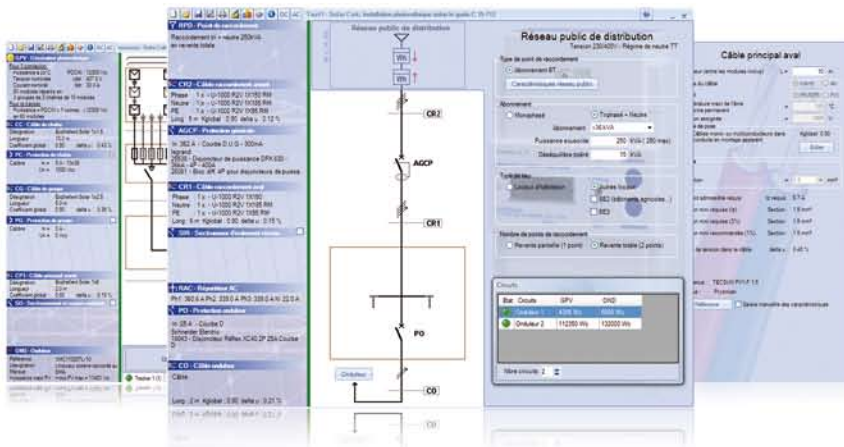


Solar Calc™

Electric sizing of a solar installation connected to the public grid in accordance with the C15-712-1 guide.

Solar Calc™ is a software program designed to enable professionals to size photovoltaic installations connected to the public grid in accordance with C15-712-1 specifications. Solar Calc™ takes all of the elements contained in a photovoltaic installation and provides compliance information for each one in a clear and user-friendly presentation.

Solar Calc™ presents a complete, global view of the photovoltaic installation, from photovoltaic modules, to the public distribution grid connection; from a simple residential installation, to installations with multiple inverters distributed on a three-phase system.



GUIDE
C15-712-1



Strong points

- DC and AC electric sizing with single or multiple inverters
- Standard calculations and monitoring
- Multiple brands provide independence from any single manufacturer
- Personalized catalogs
- Unique market product
- Ergonomics and user-friendliness

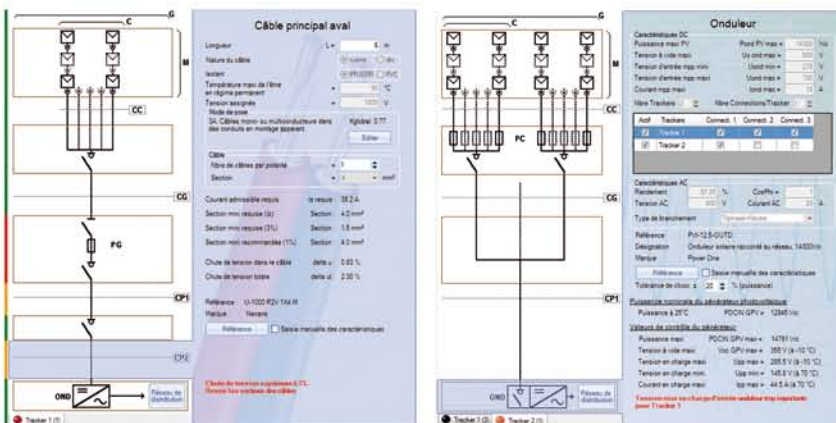
The future of electrical calculation

From left to right, **Solar Calc™** displays:

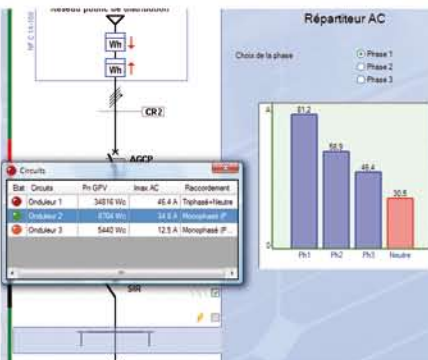
- the main technical characteristics of the different installation components
- a color marker indicates components compliance status
- the installation diagram

Each of the fields displayed automatically reacts to the descriptive data entered by the user. So that **Solar Calc™** facilitates the processing of all kinds of installations from the simplest to the most complex.

A simple click in the diagram allows access to specific component data.



The components' characteristics can be entered manually or integrated directly from the catalogs included in **Solar Calc™**.

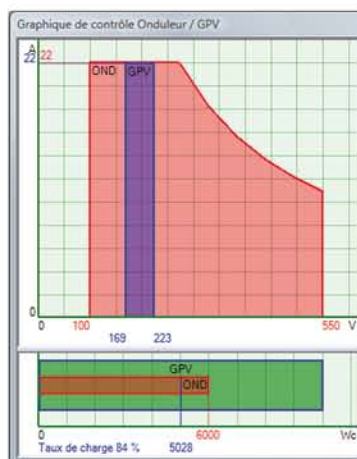


Facilities management with multi-inverters and phase distribution

Dynamic visualization permits real time optimization and adjustment between the photovoltaic generator and the inverter.

A comparison of the voltage and current levels, taking variations due to temperature into account.

A graph depicting the load level of the inverter.



The greatest attention has been paid to all the elements of the photovoltaic installation.

The photovoltaic generator is described in detail:

- Panel features
- The number of panels and how they are organized
- Installation environment (a link to the PVGIS site of the European Commission is provided to assist with calculation of the loss of irradiation)
- Minimum/maximum operating temperatures

The adaptation of the inverter is optimized in accordance with:

- The power level with an upgrade option
- The minimum and maximum current and voltage levels
- Consideration of the variations in temperatures at which the panels are used
- Management of trackers, connection points and inverters

The cables are sized to respond to different constraints:

- Consideration of the need to provide protection against the risk of fire
- The current used
- The mounting method
- The maximum voltage drop imposed (3 %)

Circuit protection fuses are optional, or mandatory as required:

- Calculation of the minimum/maximum permissible calibers
- Assigned DC voltage

Multiple manufacturers' databases

Modules:

- AlfaSolar
- Axitec
- Caldeis
- Chaori
- Fonroche
- Conergy
- Kvazar
- Kyocera
- Mitsubishi
- Photowatt
- Roto Frank
- Sanyo
- Schott
- Sharp
- Siliken
- Silia
- Solar Fabrik
- Solarworld

- Sunpower
- Suntech
- Systaic
- Tenesol
- Uni-Solar
- Voltec Solar
- ...

DC Protection:

- ABB
- ETI
- Ferraz-Shawmut
- GE
- Legrand
- Moeller
- Schneider Electric
- Socomec
- ...

Inverters:

- AD Ansaldo Sistemi
- Industriali
- Axun
- Danfoss
- Fronius
- Kaco
- Kostal
- Lti
- Mastervolt
- Photowatt
- Power One
- Refusol
- Schneider
- Siliken
- SMA
- Socomec
- Sputnik engineering
- ...

tion



According to the available data, Solar Calc™ offers detailed interfaces or suggests default values in compliance with the standards in effect.

All features are developed in compliance with the following French standards: NF C 15-100, C 15-712-1, C 32-502...

Adaptation of the inverters:

- Compatibility with the connection to the public grid (power, type...)
- Calculation of resulting current (phase distribution)
- Monitoring of the load imbalance on the public network

The cables are sized to respond to different constraints:

- The current used
- The wiring method
- The maximum imposed voltage drop (3 %) and the maximum recommended voltage drop (1 %)
- Thermal constraints

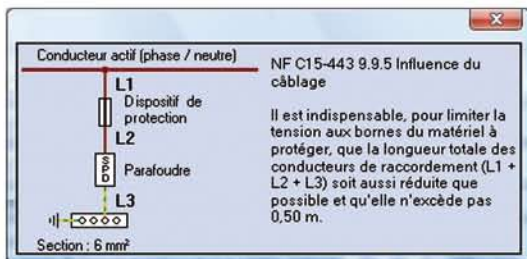
Sizing of protective devices:

- Caliber calculations
- Breaking capacity
- Thermal and magnetic thresholds
- Differential threshold according to the environment
- Functioning time

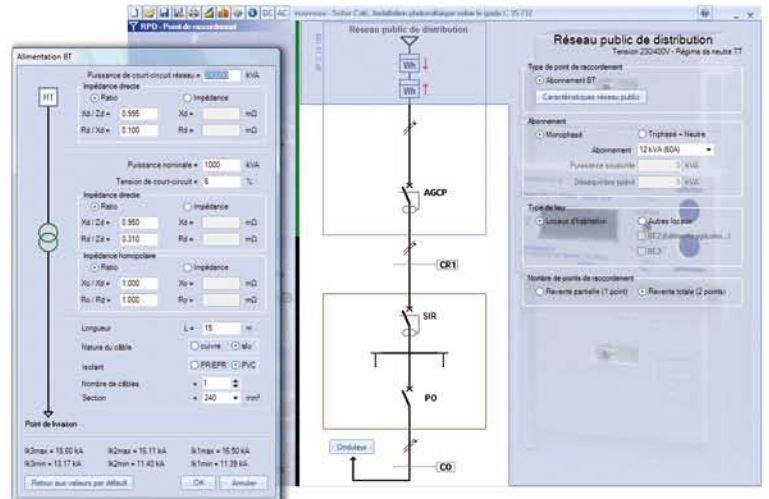
Systematic lightning study:

- Automatic definition of the types and characteristics of lightning protectors
- Control of associated lightning protection

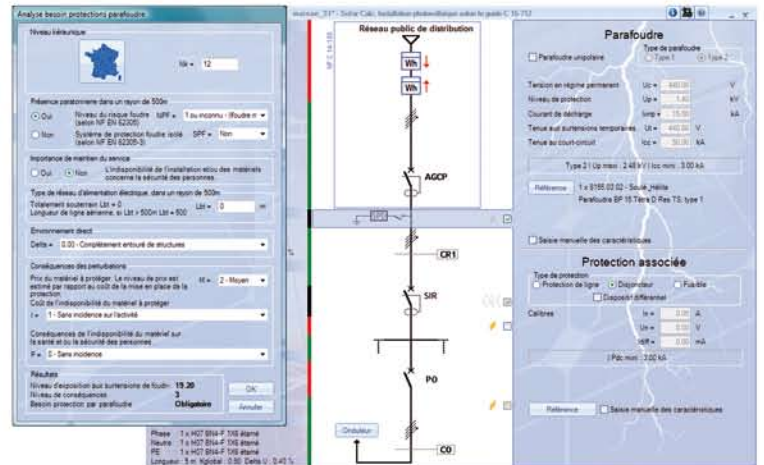
Determination of the grounding section and connection length limits.



Real time warnings are displayed in Solar Calc™ to make users aware of deficiencies and/or problems as they are encountered.



Display of the overall results and automatic pre-filtering of the selection of devices that are compatible with the installation with the option of visualizing each of these results in detail.



Lightning requirement assessment, in accordance with environment and installation, in compliance with NF C 15-443.

Automatic definition of the types and characteristics of lightning protectors at different points in the installation.

Control protections associated with the lightning protectors (coordination, short-circuit, differential).

Multiple manufacturers' databases

Lightning protectors:

- Citel
- Dehn
- Eutelec
- Legrand
- Phoenix Contact
- Socomec
- Soulé & Hérita
- ...

Cables:

- Acome
- Eupen
- Nexans
- Prysmian
- Silec
- ...

AC protection:

- ABB
- Ferraz-Shawmut
- Hager
- Legrand
- Moeller
- Schneider Electric
- Siemens
- Socomec
- ...

AC/DC interrupters:

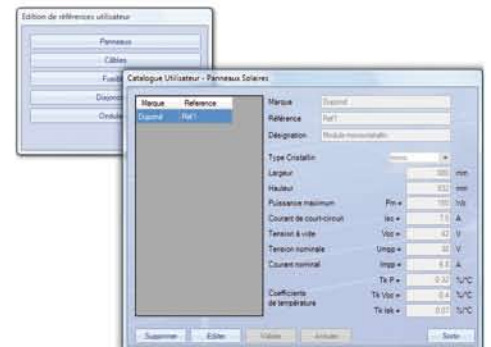
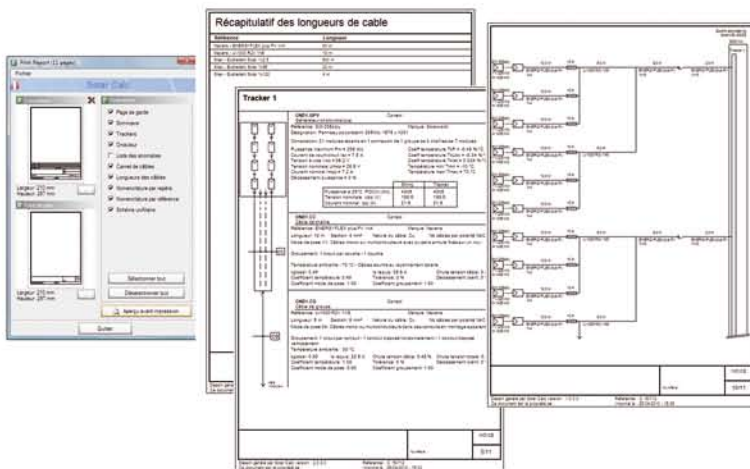
- Hager
- Legrand
- Schneider Electric
- Socomec
- ...

Solar Calc™

Other Solar Calc™ features

Solar Calc™ contains equipment reference catalogs. You can also enter personalized catalogs.

Solar Calc™ gives you the ability to edit design calculations and personalize them. It includes calculation results, terminology, lists of cables and a single-line diagram...



Thus, Solar Calc™ allows you to edit all the necessary documents for the implementation of your installation and to provide the technical elements required for the validation of your installation by the regulatory authorities.

Solar Calc™ unique features

Our expertise at your service

Solar Calc™ was developed by Trace Software International, a company with over 20 years experience producing industrial design software solutions.

Trace Software International has acquired recognized expertise in the area of installation calculations due to Elec Calc (also called TR-CIEL) a software program for the calculation of low voltage electrical installations in compliance with the C15-712-1 guide, of which more than 3,000 copies have been sold in France.

Safety and compliance

- Calculations and controls in compliance with **the French standards:** NF C 15-100, C15-712-1, C32-502, ...
- Real time compliance visualization
- The peace of mind of implementing a professional error free installation

Speed, efficiency and economy

- Direct access to the diagram and the main technical features
- Automatic installation design
- Real time installation calculations
- Rapid visualization of anomalies and of the suitability of the selected equipment
- The best selection of equipment with the guarantee that the installation will be compliant

Please contact us for any information and/or to participate in an online demonstration :

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