tracesoftware | eleccalc™

Smart calculation & design

Editorial

Dear users,

It is a great pleasure to deliver more agreeable and enjoyable engineering tools. Our newest technologies are specially thought and designed to be friendly and pleasant to use as well as more productive.

We conceive and design our software solutions with you in mind. This means that we take a very careful look at our user interfaces and their options. Our intention is always to make it as intuitive, easy and straight-forward as possible.
This results in enablers of sustainable business development and competitive advantage.

New elec calc 2016 enabling Smart Calculation and Design, lets you go from HV to LV within the same schemes, generate multiline schematics for elecworks and link with BIM.

You will also have more choices with a new on-line tool we call "elec live".
In short, big news towards integration and interoperability.

To your success!

Dr. Pedro PUIG
Trace Software International CEO

tracesoftware

elec calc™

Summary

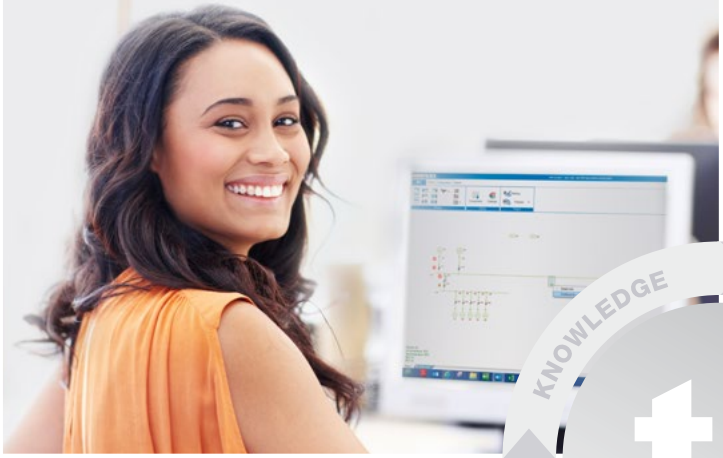
About **trace**software international

With more than 25 years of experience, Trace Software international is one of the worldwide leaders in software development and services for engineering, with unique market knowledge, continuous investments in R&D, and the steady drive for innovation as several industries have placed Trace Software solutions as the most valuable and appreciated software tools for engineers in the world.

Thanks to strategic alliances with leading companies as Dassault Systèmes, PTC, RS Components, or Traceparts, our continuous software evolution is guaranteed, where our major goal is to enhance our customers' productivity.
Considered by our customers as their long term technological partner, Trace Software International is focused in software solutions that ensure a user friendly experience, process automation, reliable documentation and a flexible workflow.

Trace Software international has worldwide presence through authorized partners or subsidiaries around the world, covering more than 90 countries ensuring local technical support and services.

Electrical software experts



Empowering since 1987

KNOWLEDGE · EXPERIENCE · TECHNOLOGY · WORLD PRESENCE

International presence, covering 90 countries worldwide

Technological partners

traceparts
Product Content Everywhere

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RS

DASSAULT SYSTEMES

ACTIVITY SECTORS - elec calc™ applications

The current version of elec calc™ has been developed thanks to the accumulated experience of Trace Software International. elec calc™ software calculation includes performance guarantees, which are necessary for sizing electrical installations in high and low voltage electrical projects in industries such as energy, infrastructure, and obviously critical facilities engineering. The sizing of elec calc™ projects will allow to reduce costs, reduce design-time of the projects and ensure the correct operation of the installation according to different standards.

Engineering

Technical offices and engineering service companies specialized in the design of electrical installations, provide their customers with their knowledge and professional know-how in order to carry out projects according to actual conditions. They must meet all the requirements pertaining to their domain, from initial concept study until the commissioning of the work. Finding competent suppliers is one of the most important tasks of their activity; and for the proper execution of the project, it is essential to produce detailed and complete documentation, from the beginning of the technical specifications.

The project work must be done in the shortest possible time, accurately and with highest quality in order to meet the deadlines and to ensure the level of performance of the installation. In order to meet the expectations of its customers, the design office must have specialized solutions available for high performance. With a large number of features, content and accuracy of calculations, elec calc™ ensures correct sizing of high and low voltage electrical installations. Among the main features are the calculation of short-circuit currents according to the IEC 60909 by the method of symmetrical components, discrimination between multilevel protections, simulations of different operating modes of the facility and the generation of detailed documentation.

Energy

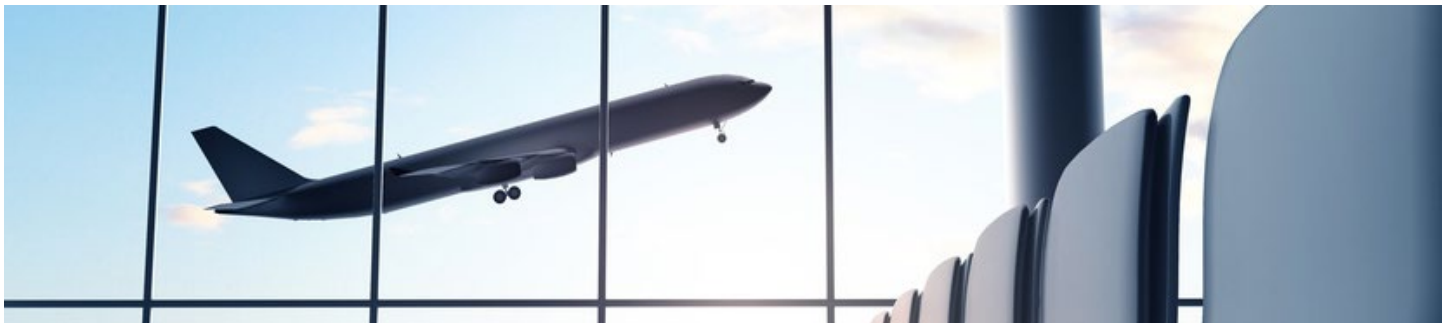
Today, the generation of electricity comes from different sources such as nuclear power, photovoltaic energy, wind power or hydroelectric energy, among others. For reasons of safety and quality of the power supply, installations require validation of the calculations according to various international and national standards in force. elec calc™ incorporates these standards to calculate the installation, ensuring optimum sizing and certifying the installation according to the selected standard. elec calc™ performs the sizing of the installation according to the following standards, which is an added guarantee when certifying any installation:

- IEC 60364-5 for the type of cable, the methods installation or compensation factor
- IEC 60909 for calculating the short-circuit currents with the method of symmetrical components
- IEC 60947 and IEC 60898 for the selection of protection devices
- IEC 61800 for calculating the THD

Infrastructures

elec calc™ incorporates a complete suite that ensures optimal sizing of the installation and proper maintenance throughout the installation's life cycle: from design, works supervision, commissioning, operation, maintenance and dismantling. elec calc™ projects ensures collaboration among the different stakeholders related with the project such as engineers, installers, supervisors or maintenance personnel, covering the entire life cycle of the installation. The major facilities within this sector are airports, ports, tunnels and highways, among others.

Some of the most important benefits for companies that are active in this sector include discrimination studies between protections according to the level of maintenance and the applied standards, such as IEC 60947 for maintenance in industrial environments that require specialized personnel or IEC 60898 for non-industrial maintenance environments where lighter maintenance is required. In addition elec calc™ considers the history of equipment during the entire life of the installation, helping to maintain document archives of the installation and equipment used.



Critical Installations

Ensure the correct behavior of critical facilities such as hospitals, data processing centers or facilities in mining. Among these activity sectors, one of the main challenges that engineers face, when dimensioning these facilities, is continuity of service. While calculating the installation, factors such as the earthing systems (TT, TN-C, TN-S, or IT), the short-circuit currents (according to IEC 60909) and performing a discrimination study between protections are certainly key to consider, in order to ensure the continuity of supply and the safety of the people, in these types of environments.

Elec calc™ includes the necessary features to perform a complete analysis of such facilities, carrying out detailed studies according to the criteria defined by the design office. In addition, elec calc™ allows the user to define several scenarios of operation (normal, emergency, network change-over ...) to check the behaviour and sizing of the installation in each operation separately and while all the conditions apply at the same time.

ADVANTAGES & BENEFITS

elec calc™ advantages are focused to ensure safety, service continuity and energy efficiency according the different standards worldwide. With a powerful technology that allows to size low and medium voltage facilities, any engineer will benefit to reduce direct cost on the project because of the right size of cables and protections, keeping in mind different potential scenarios.

Safety & security

Ensure proper operation of an electrical installation against a possible failure, protect people and the installation.

Energy efficiency

Reduce energy consumption and save on equipment costs for optimally sized electrical installations.

Service continuity

Keep the power supply when a fault occurs and ensure production and supply in the rest of the installation.

ANSI/IEEE NEC

ANSI/IEEE NEC
with or without national rule, with the possible influence of a country

IEC
with or without national rule, with the possible influence of a country

Reduce costs

With quick selection of manufacturers' references and verification of installation sizing, save on equipment costs and reduce costly errors in design.

Faster time-to-market

Use advanced design options to do high and low voltage electrical calculations, reduce your engineering team's design time and cut project engineering costs.

Maintenance optimization

Keep a detailed log of the installation, ensure efficient preventive maintenance, preserve the safety of the installation.

Certification (according to standards)

Size according to the international and local standards, ensure correct behavior of the installation, comply with regulations in force.

Consistency of the calculations

The data included in elec calc™ as manufacturer catalogs or different standards are certified in order to guarantee the quality of the calculations.

Faster engineering

With elec calc™ features like smart design, replication & user library design optimization, maintain updated documentation and improve development time.

Standard documentation

With elec calc™, generate configurable, detailed and comprehensive documentation of the calculations, reduce errors due to inconsistent data.

MAIN FEATURES

- elec calc™ provides engineers, installers, developers, energy producers & distributors and manufacturers of electrical switchgear, with a powerful tool for sizing electrical installations. This tool includes calculation models which have the highest performance on the market, in the field of design and calculation, ensuring rapid development of the project and high quality of the electrical calculations.

SOFTWARE TECHNOLOGY

- Own graphical engine, compatible with .DWG/.DXF file formats
- SQLite database for catalogs
- Digital license that allows standalone & server/user installation
- Standalone & Network license
  It can be installed in as many computers as needed
- Compatibility with applications Microsoft SQL Server

ELEC CALC MANAGER

- Multi-language console: english, french, spanish and chinese
- Multi-user access in real time
- Customizable user rights (read only access; read only and print / export access; free access) protected by password

USABILITY

- Agile and intuitive console
- Contextual toolbars
- Free drawing (line, polyline, arc, ellipse, rectangle, text, …)
- Note insertion
- Symbol rotation
- Multi-level undo/redo
- Copy, cut and paste command
- Drag and drop command
- Zoom
- Search command for components

PROJECT MANAGER

- Calculation of the installation in real-time
- Standards including IEC, AFNOR-NF
- Home menu – useful for setting options for the interface common for all projects
- Configuration menu
- Locations manager
- Operating modes manager
- Reports printed by location
- Advanced template management
- Creating template from a project
- Location template
- Standard components templates
- Environment parameters (altitude, air and soil temperatures, risk of fire or explosion)

DATA EDITION

- Export of the calculations report to PDF
- Export of the one-line diagram (synoptic or folios) to PDF, DWG
- Export to Excel

System requirements

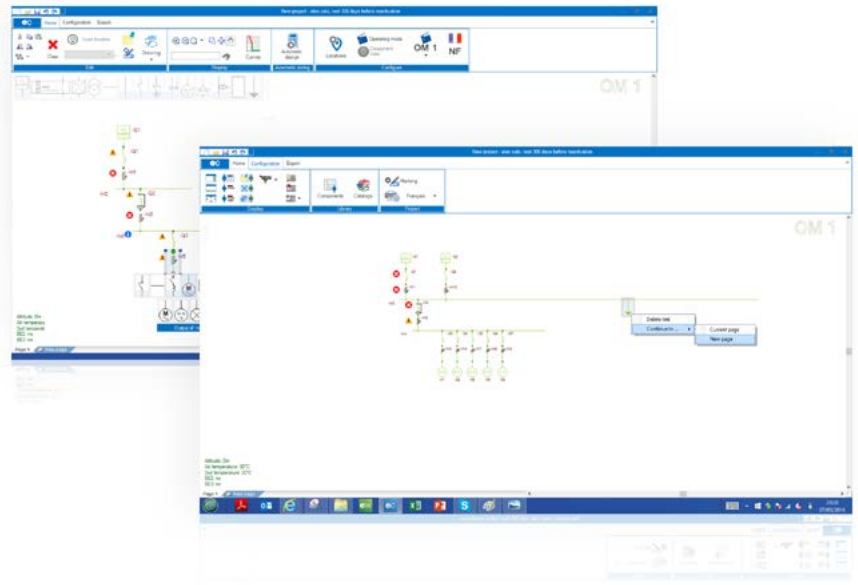
- Windows 7, Windows 8, Windows 10 (32 or 64 bits)
- 2GB RAM (minimum)
- 1GB for application and Trace Software catalogs (minimum)
- Graphics card
- Intel® or ADM® processor
- Broadband Internet Connection
- Internet connection for license activation

ONE LINE DIAGRAM DESIGN

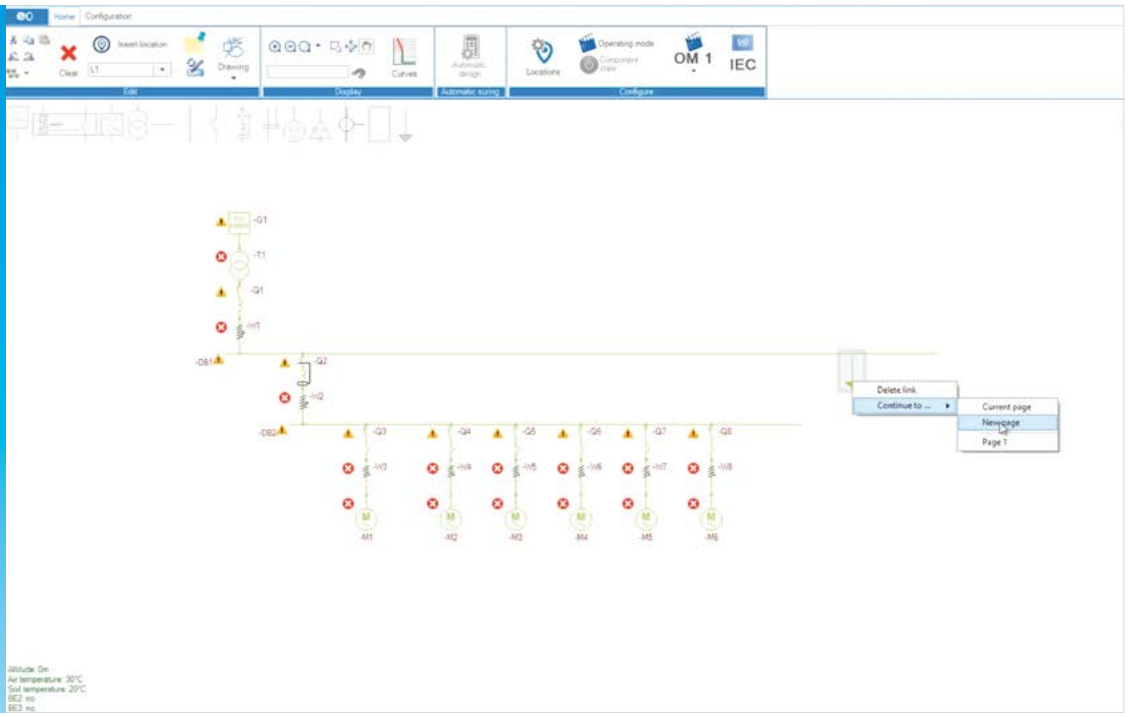
elec calc™ includes intelligent design features never seen before in the market, like the Intellisense - a smart design function, that proposes the most likely components to be connected to the selected one, among others to speed up the design of projects.

Features

- Smart Design Function
- Automatic connection of components
- Graphical alert and errors
- Graphical results in the one-line diagram
- Standard and customizable components
- One-line diagram on several pages with intelligent links
- Customizable source colors to differentiate networks with different supplies
- User library
- Duplication and replication commands
- Automatic and manual marking of components
- Entering data from spreadsheet
- Customizable grid



Click on the image to watch our video «Drawing electrical diagram»

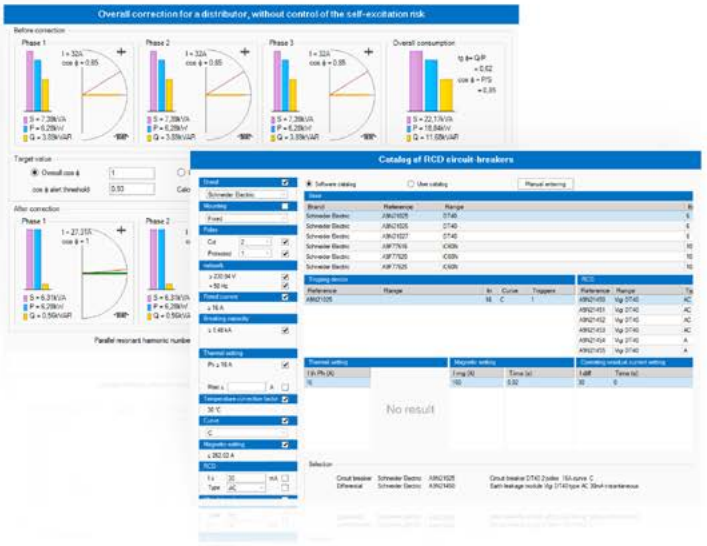


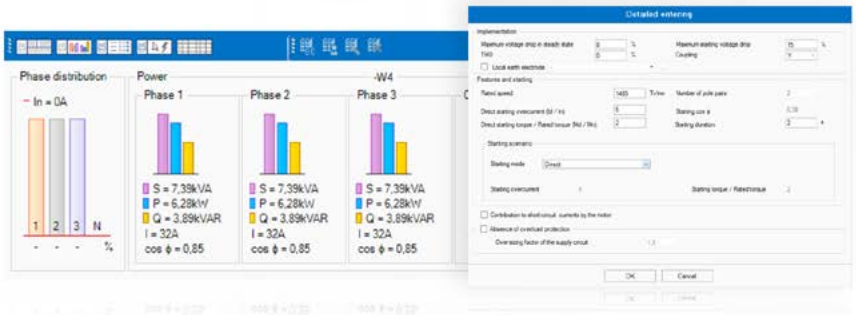
SOURCES & LOADS

elec calc™ has several power supplies and loads with advanced options in order to make accurate calculations based on detailed data such as the environment parameters or starting mode of motors, among others.

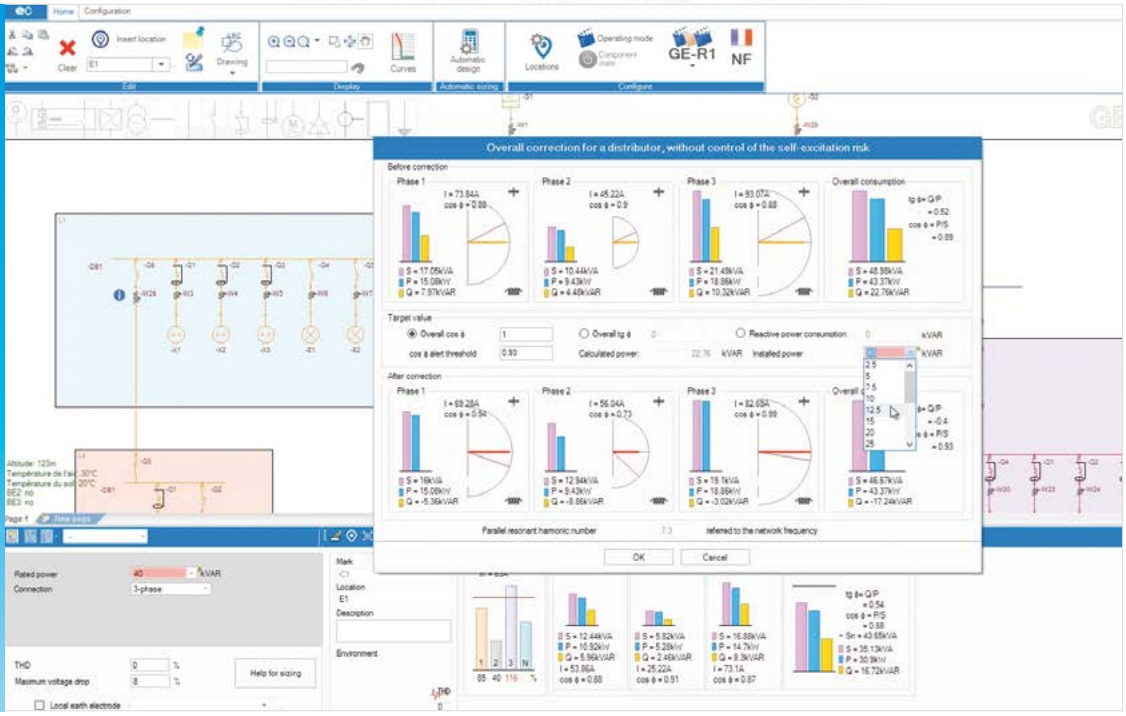
Features

- Power balance (active, reactive, apparent and power factor)
- Several types of sources: HV or LV supplies, transformers, generators, UPS, VFD
- Different types of transformers: HV/HV, HV/LV, LV/LV
- Integrated UPS operating modes: Off, Network1/ Network2 and by-pass, on-load or off-load
- 50 Hz or 60 Hz
- Power factor correction
- Loads: motor, plug, lighting, resistance
- Motor starting management
- VFD
- Power balance on each source or distributor
- Growth and load factors on each distributor





Click on the image to watch our video « Electrical sources & loads »

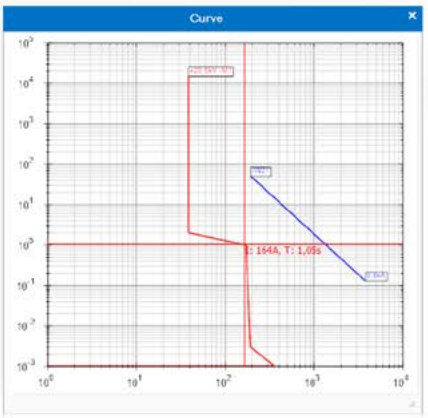


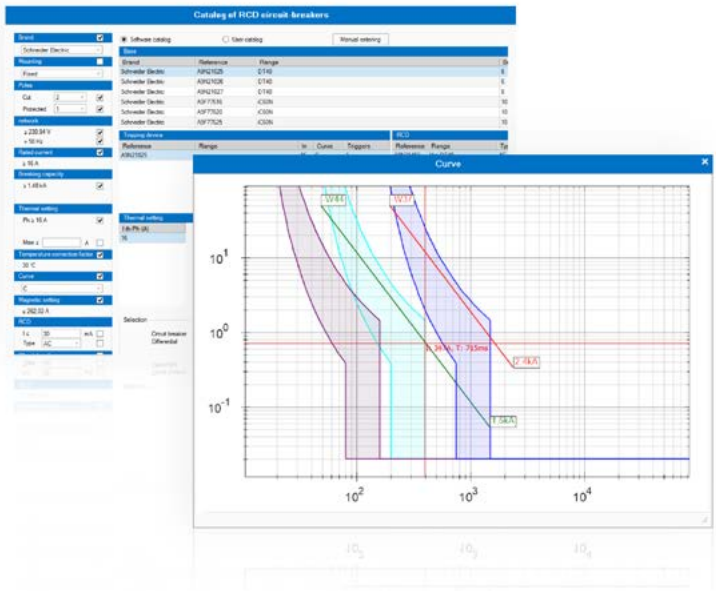
PROTECTIONS & DISCRIMINATION

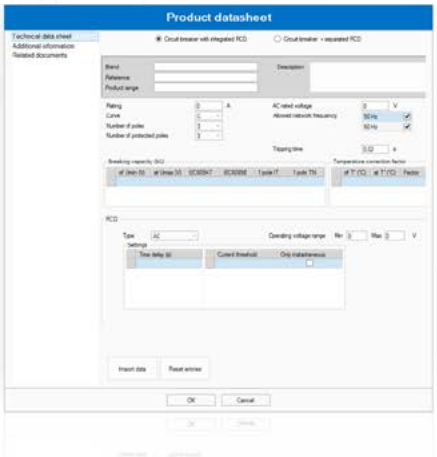
A good discrimination study allows to coordinate the different protections at different levels of the installation, in order to guarantee the continuity of supply in the critical installations in case of failure (short circuits and overloads).

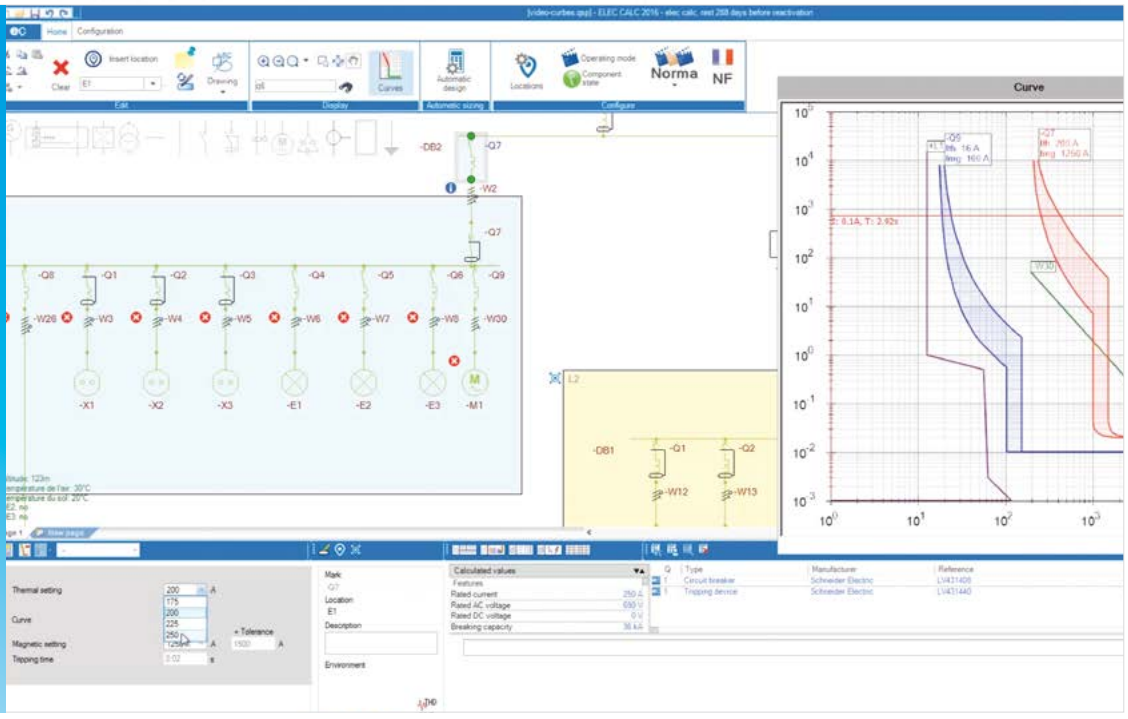
Features

- Multilevel discrimination analysis
- Discrimination study by free selection of components
- Dynamic graphical setting of the device
- Adjustable zoom









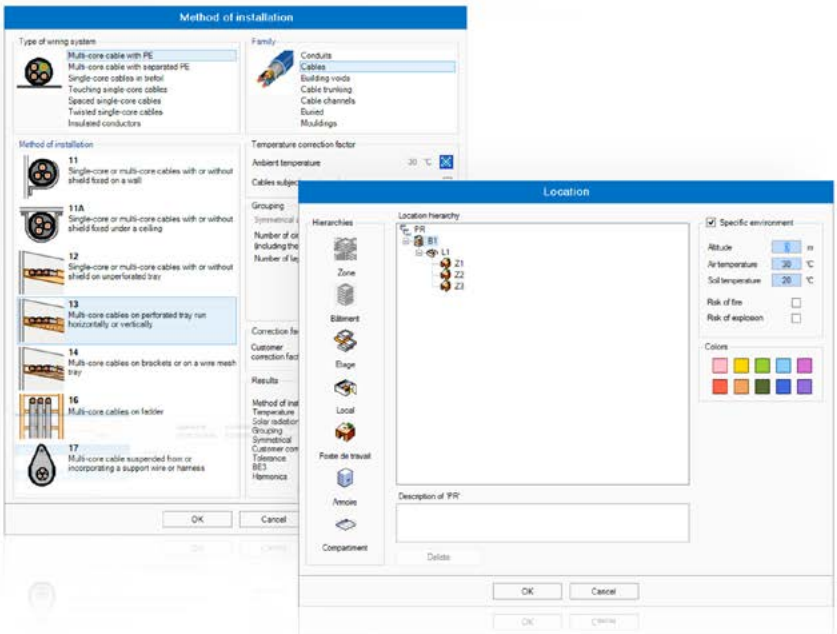
Click on the image to watch our video « Electrical protection & discrimination study »

SIZING OF THE WIRING SYSTEM

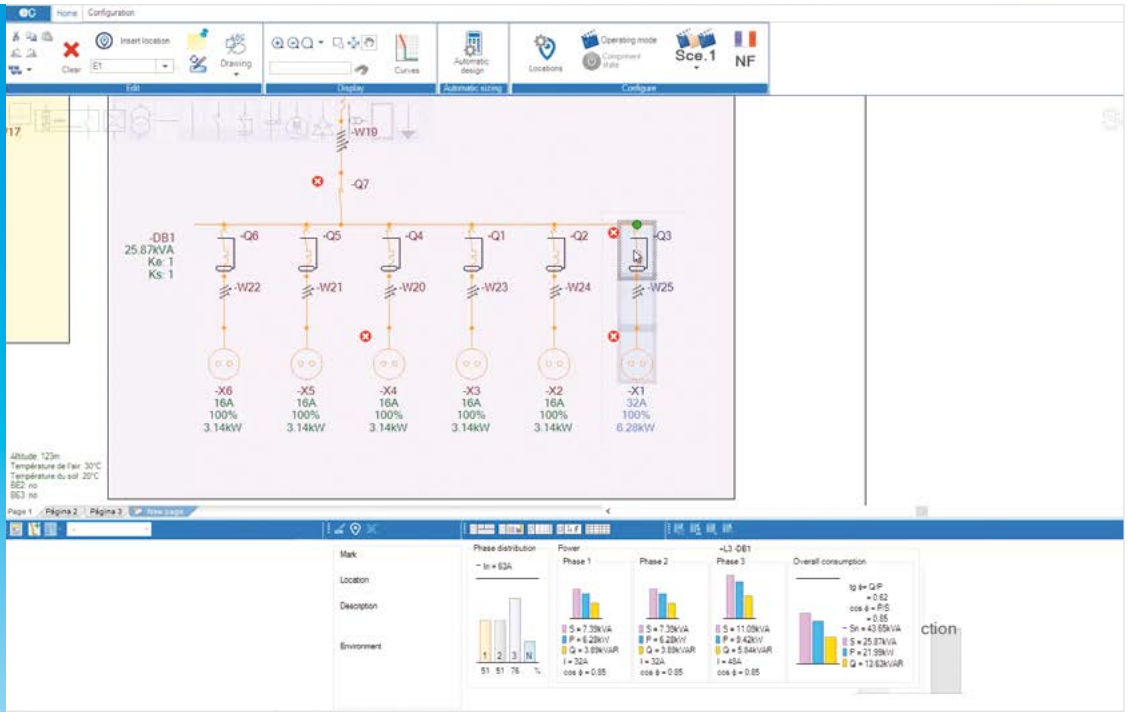
› Savings in the cable sections are essential when sizing an installation in order to minimize the costs. Therefore, correct sizing of wiring systems is a key factor in any type of installation.

Features

- Sizing of wiring systems according to IEC 60364-5-52, NF-C15-100, or NF C-13-200
- Short-circuit currents calculated according to IEC 60909, by the method of symmetrical components
- Sizing of the cables according to voltage drop, ampacity, short-circuit currents and protection against overloads
- Different earthing systems: TT, TN-S, TN-C, IT with or without distributed neutral
- THD according to IEC 61800
- Several earth electrodes



Click on the image to watch our video « Automatic electrical calculation & sizing »

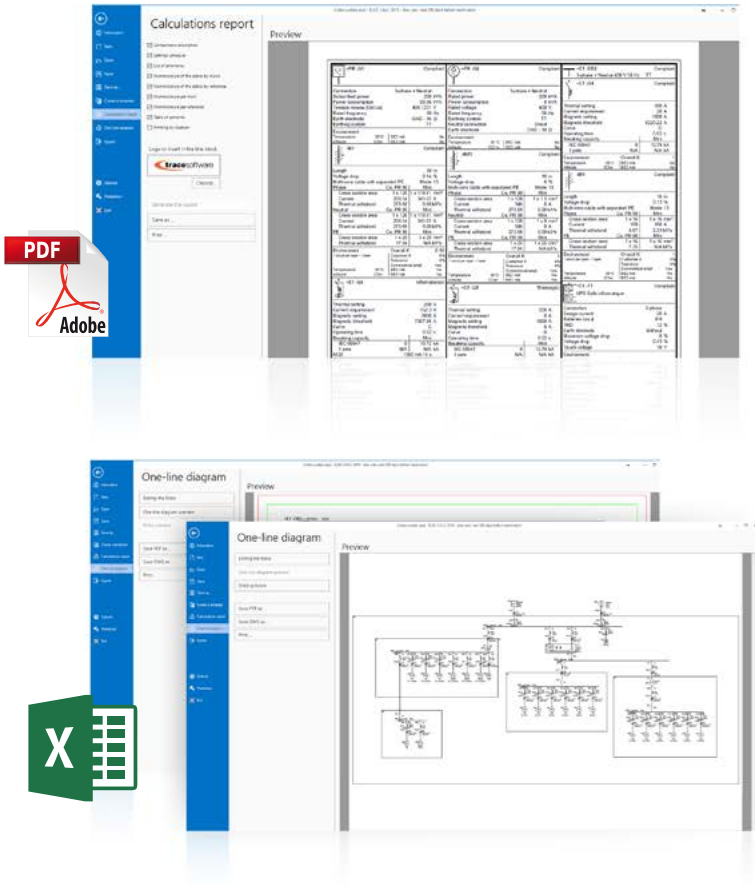


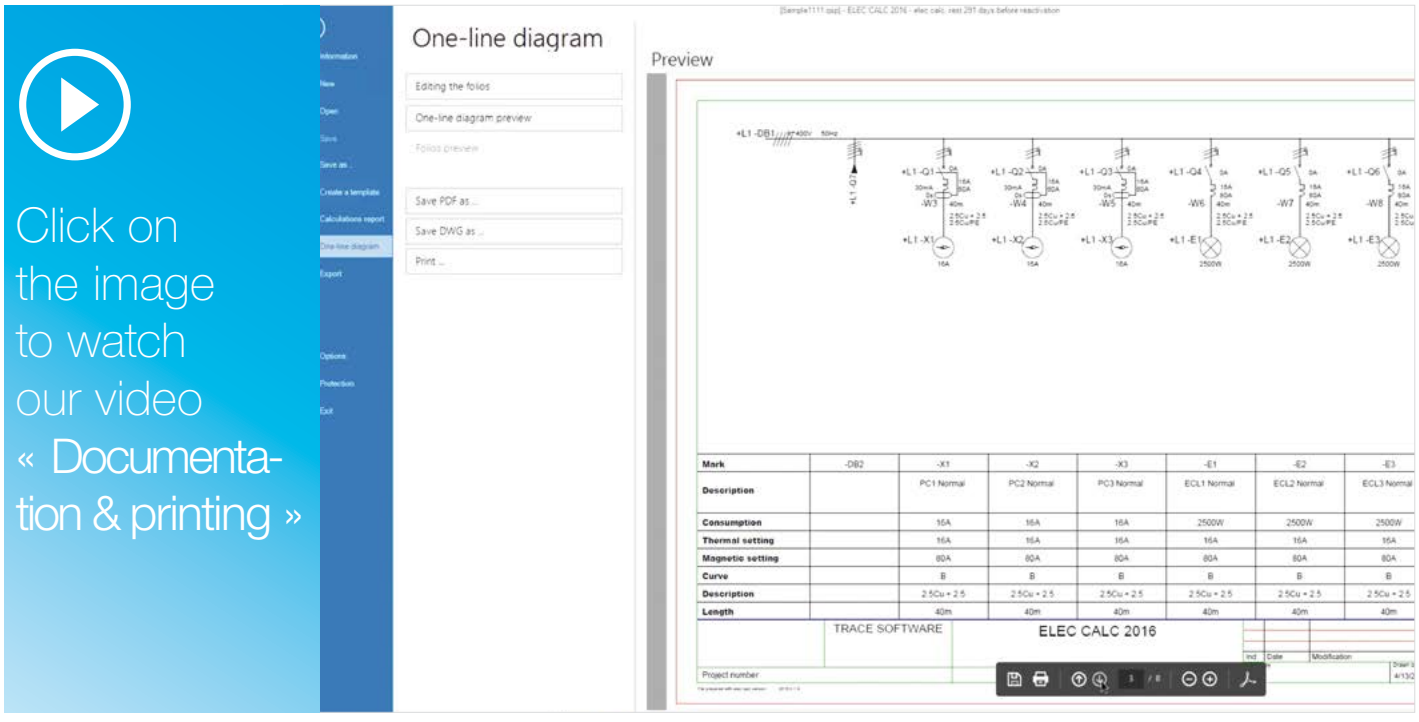
DOCUMENTATION & PRINTING

elec calc™ allows the automatic generation of documentation through an agile configurator ensuring the edition of comprehensive and accurate documentation complying with the design and calculations.

Features

- Printing language independent of the console language
- Free print settings of project
- Printing sorted by distributer
- Printing in the calculations note (with three circuits per page)
- Calculation notes per component
- Settings schedule
- List of anomalies
- Cable list per brand
- Cable list per reference
- Bill of Materials per brand
- Bill of Materials per reference
- Table of contents
- Customizable logo in the footer/ page layout





CATALOGS

Ensure the use of consistent data throughout the sizing of projects, with the continuous updating of content by Trace Software International. Download detailed information of VFD, protection, UPS, motors or generators, among others to size projects with total confidence.

Update your user catalogs according to the requirements of your project and optimize design time, without waiting for us to incorporate the equipment you need.

- Multi manufacturer catalogs
- Customizable user catalogs
- Automatic filtering of references

Major electrical manufacturers included

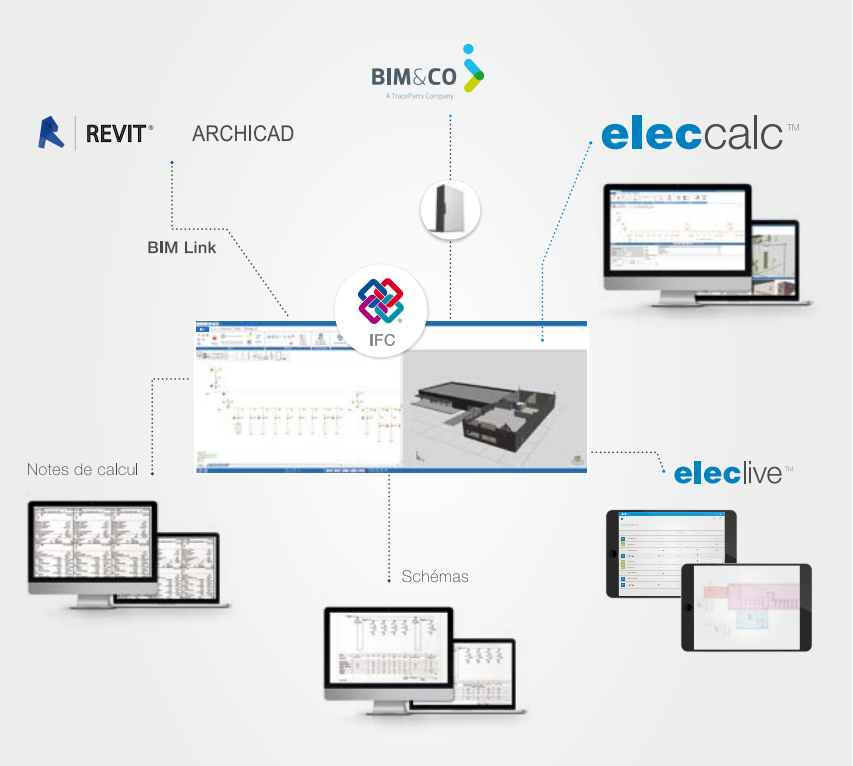
ABB · Schneider Electric · LEROY SOMER · MITSUBISHI ELECTRIC · EATON · legrand · GE · cebeo · MARECHAL ELECTRIC · MOELLER · hager · Nexans · ACOME · EUPEN Cable USA · Top Cable · ISOLSBARRA · omerin · MarelliMotori · NAXSO · cae GROUPE · OSRAM · PHILIPS · PRYSMIAN · Rockwell · SIEMENS · Silec Cable a General Cable company · socomec · BV TWENTSCHE KABELFABRIEK

MODULES

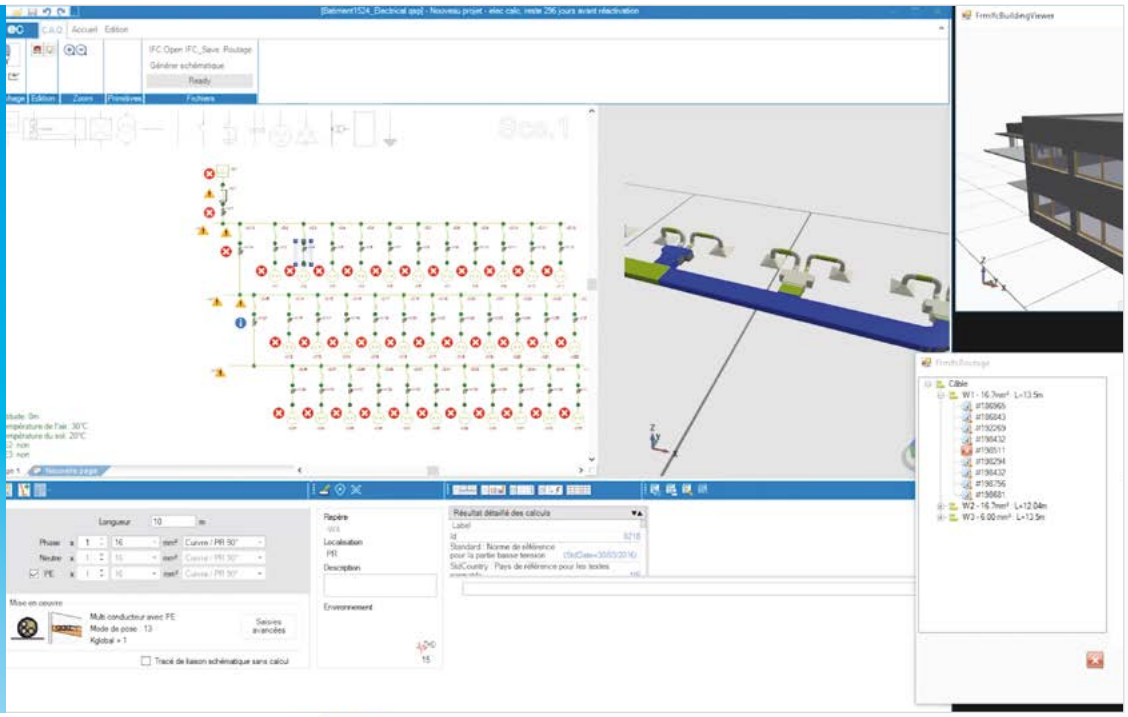
elec calc™ | BIM

elec calc BIM is the latest generation of software that seamlessly integrates electrical equipment used for the sizing of the project with different 3D architectural design platforms that meet the IFC protocol.

Among its main advantages we quote flexible sizing of cables according to the lengths in the 3D model or consistency with the model.



Click on the image to watch our video « elec calc BIM »

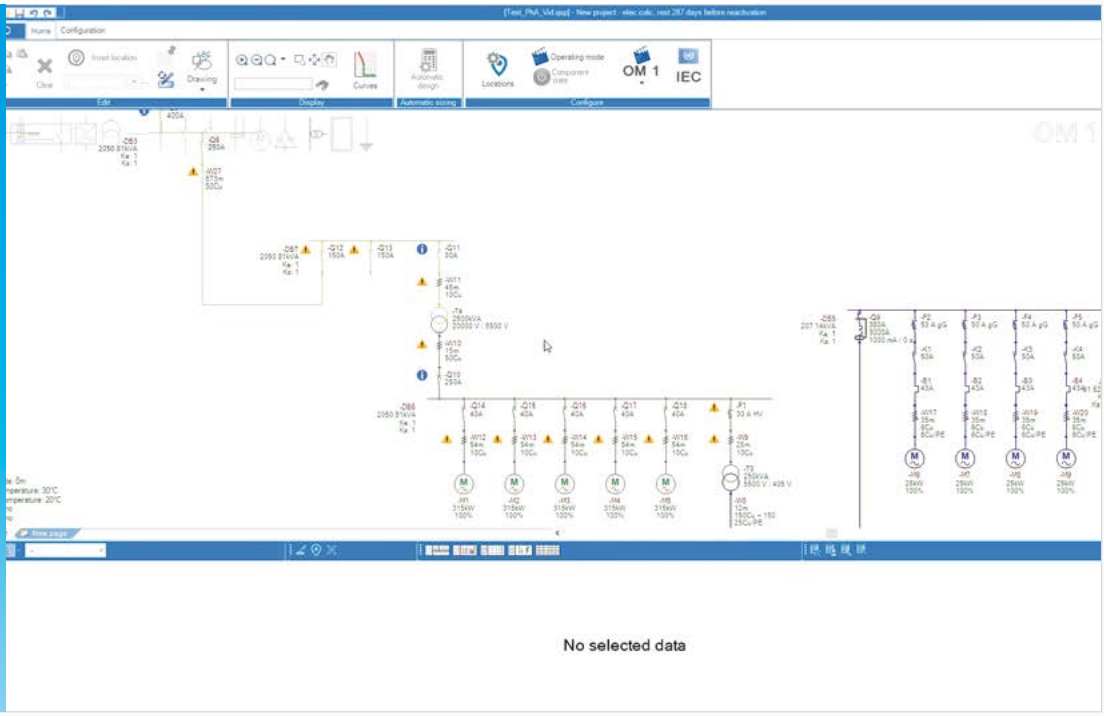


elec calc™ | HV

This elec calc module allows to size and check a high voltage network according to IEC 60909 standards, calculating the maximum and minimum short-circuit currents, determining the cable section, the thermal withstand and the voltage drop. **Benefits include:**

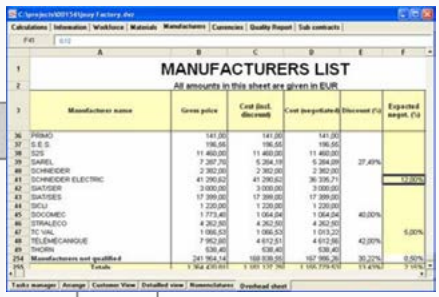
- Data entry in HV, depending on the network (3-phase and zero-sequence impedances)
- Study based on the different network configurations

Click on the image to watch our video « elec calc HV »



QUICK DEVIS integration

Item	Description	Unité	Quantité	Coût		Incidence (%)	Prix de vente			
				Par unité	Total		Par unité	Total		
	RENEWAL OF SUTTON FACTORY PRODUCTION FACILITIES									
A	**Equipment**									
	High voltage - 60hz power supply									
A.1	LV swithgear in extension of the existing high voltage devices	U	2	7,634.28	15,268.57	24.4998247	10,111.61	20,223.22	12.00	24.00
A.2	MV / LV Transformer	Set	1	21,292.12	21,292.12	24.4977009	28,200.63	28,200.63		
A.3	Installation of the 2500 kVA transformer *(including the restoration of the cabinet)*	U	2	6,402.17	12,804.34	24.4983779	8,479.51	16,959.02		



SUBSCRIPTION SERVICES

Trace software International offers different kind of subscription contracts that combine software updates and technical assistance, so as to ensure that you get the latest software version, unlimited and customized technical support worldwide in 24h and direct access to the most up-to-date technical contents in the market.

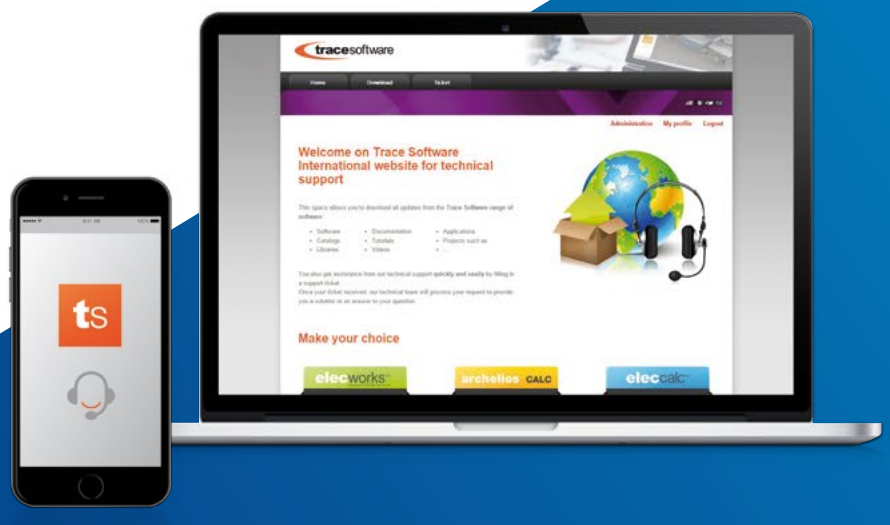
SUBSCRIPTION LEVEL	SILVER	GOLD	PLATINUM
SOFTWARE PER SUBSCRIPTION			
elec calc™	•	•	N/A
archelios™ Calc	•	•	N/A
elecworks™ 20/40	•	•	N/A
elecworks™	N/A	•	•
elecworks™ Onboard	N/A	•	•
elecworks™ Facility	N/A	N/A	•
elecworks™ P&ID	N/A	•	•
elecworks™ for PTC® Creo®	N/A	•	•
SUBSCRIPTION SERVICES INCLUDED			
Software releases/updates	•	•	•
Cloud	100MB	300MB	500MB
Training courses (1)	Basic	•	•
Electrical Content Portal (2)	•	•	•
Support services	ticket / hotline	ticket / hotline / remote	ticket / hotline / remote
Warrantied answer time (max.)	24 working hours	16 working hours	8 working hours
Consulting services (3)	N/A	N/A	1/2-day
Reference project	N/A	N/A	•

Main advantages

- Software upgrades & service packs
- Personalized technical support
- Certified access to contents
- Predictable budgeting

Benefits

- Increase your productivity year after year
- Ensure success in your projects
- Reach a higher quality and professionalism
- Reduce your long-term costs



(1) Training webinars: 7 basics et 11 advanced per year. Access to recorded webinars.
(2) E-Content Portal (ECP) for elecworks: each version will have access to specific content based on its features (Platinum subscriptions will have full access).
(3) Total days per year. Travel expenses excluded. *Basic Training course required.
* *Subscription services are associated per contract.*

SUPPLEMENTARY PRODUCTS

eleclive™

Sharing and viewing tool for elec calc projects

elec live™ is an application allowing to share elec calc projects on a browser, accessible from everywhere and on all type of devices (computer, tablet, smartphone).

eleccalc™ EP

Electrical design of a public lighting system

elec calc™ EP is an application intended to help professionals design their outdoor lighting systems in accordance with standard NF C17-200 and the specifications in the "C17-205" guide.

elecworks™

A simple and intuitive tool

elecworks™ is a new generation CAD software for the design of automation projects and electrical installations.

archelios™ suite

Conceive the wholeness of your photovoltaics installation

archelios™ suite is a unique solution allowing to work on the entirety of a photovoltaics project since the feasibility study until the complete generation of the calculation notes and documentation necessary to its implementation.

tracesoftware