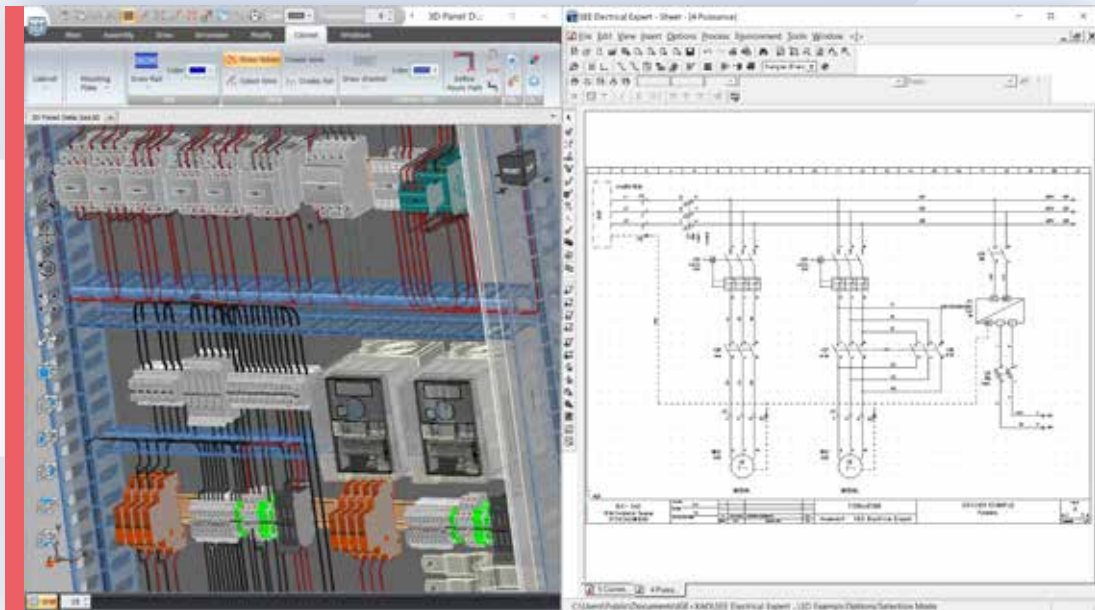# SEE Electrical Expert

All the power of Electrical CAD dedicated to Industrial Automation & Electrical Harnesses

IGE+XAO
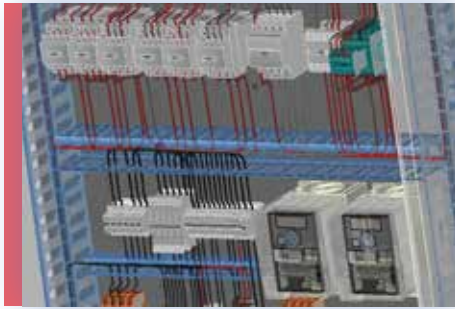
GROUP

Shaping the Future
of the Electrical PLM,
CAD and Simulation

Thanks to IGE+XAO's 30 years of experience,
SEE Electrical Expert is a reference
in the world of electrical design

Innovation

An opening to innovation
with the modules:

❯ **CONCURRENT ENGINEERING**
All the power of collaborative
work in one single module.

❯ **3D PANEL+**
3D electrical panel design.

❯ **HARNESS DOCUMENTATION**
For designing 2D harnesses and
automatic routing the wires and
cables in accordance with the
schematics with maximum reliability.

❯ **OPEN DATA**
Rapid modification of project data.

❯ **OPTIONS & VARIANTS**
Electrical project numbering as
well as change time reduction.

❯ **AUTOMATIC DIAGRAM GENERATION**,
SEE GENERATIVE VIEW,
SEE COMPODATA
Innovative solutions for automatic
generation of electrical projects.

Communication

❯ Interfaces with other key
software packages :
• Mechanical CAD (Catia, SolidWorks,
Creo, NX, Inventor AutoCAD, etc.)
• PDM (SmarTeam, Windchill,
TeamCenter, Solidworks PDM, etc.)
• ERP (SAP, etc.)
• Automation and manufacturing
software (PLC programming,
labelling, panel manufacturing, cable
manufacturing, documentation,
archiving, cost calculation, etc.)

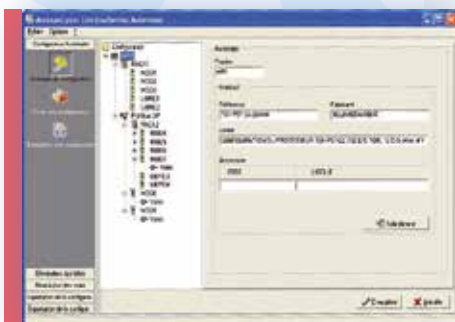❯ 100% unicode environment.

Efficiency

A complete environment for
an immediately operational
business package:

❯ More than 1,000 electrical standardized
symbols (IEC, IEEE, etc.)

❯ Online electrical equipment catalogue
(SEE Web Catalogue) with over
700,000 (and growing) parts from over
900 manufacturers including ABB,
Legrand, Eaton, Phoenix Contact,
Rockwell Automation – Allen Bradley,
Schneider Electric, Siemens, Socomec,
Wago and Weidmüller, etc.)

❯ Many built in design templates
(motor starters with corresponding
controls, drives, PLC cards, etc..

❯ Hundreds of working methods
provided for symbol tagging, wire
numbering formats, terminal
strip layouts, connectors, cables,
management of interconnections,
part list templates, terminal and cable
lists, XLS and XML export formats.

SEE Electrical Expert packages

ESSENTIAL

- Single and multi-line schematics creations and modifications
- Automatic component tagging
- Automatic wire numbering
- Real-time cross-referencing
- Navigation between related components and signals
- Fast editing with copy/ paste and modify tools
- Cable insertion
- Intelligent equipment selection (automatic & customizable filtering)

- Schematics annotated from the equipment catalogue data (contact numbers, voltage, current, etc.)
- Object and text hyperlinks
- Automatic bill of materials generation
- Automatic table of contents generation (sheet list)
- Project management (by location, function and subset)
- Electrical data explorer
- Revision management
- Error checking

- Layer management (project data display control)
- "Intelligent" PDF export
- DWG/DXF export
- Tag export for label markers
- Customizable professional environment:
  - symbol editor,
  - equipment catalogue editor,
  - title block and schematics background editor,
  - working methods editor,
  - block management (whole circuits stored to speed up future work).

PREMIUM (includes ESSENTIAL)

- Customizable automatic parts list generation:
  - equipment list,
  - components list,
  - cables list,
  - cabling list,
  - wire numbers list,
  - and more.

- Connector and terminal editor:
  - terminal automatic numbering,
  - stacked terminal management,
  - bridge and neutral management,
  - management of end stops and separators,
  - cable choice assistance.

- MS Excel or TXT export
- Automatic generation of connectors and terminal drawings
- Automatic generation of cable and connection drawings
- Automatic insertion of connector pins on schematics

ENTERPRISE (includes PREMIUM)

- Parts list management (difference between 2 revisions)
- Importing equipment list to populate the project
- SEE Web Catalogue download from an MS Excel equipment list
- Synoptic cabling editor

- Automatic creation of terminals defined in the synoptic
- Automatic cabling between terminals defined in the synoptic
- Automatic insertion (back annotation) of connections on the schematics

- Management of separate wires and potentials
- Advanced cabling management
- Automatic wire creation and update
- Automatic wiring connection according to cabling direction

SEE Electrical Expert – Additional modules

PLC
PREMIUM/ENTERPRISE
- PLC configuration management
- Network and field bus management (remote I/O)
- Automatic generation of racks and I/O card schematics
- Direct PLC configuration import from Schneider Electric, Siemens and Allen-Bradley
- Address and descriptions list import from MS Excel

Multi-Languages
ESSENTIAL/PREMIUM/ENTERPRISE
- Multi-lingual project edition
- Automatic translation tool
- Dictionary of terms editor

DXF/DWG Import
ESSENTIAL/PREMIUM/ENTERPRISE
- DXF and DWG (AutoCAD) import

Open Data
ESSENTIAL/PREMIUM/ENTERPRISE
- Data export for quick and easy editing of project data with MS Excel or another spreadsheet package
- Data imported back with consistency control

Simulation Connect
ESSENTIAL/PREMIUM/ENTERPRISE
- Logical behaviour generation as Boolean equations
- Model export to simulation software packages (Prosyst Simac)

2D Panel+
PREMIUM/ENTERPRISE
- 2D equipment placement
- Associative dimensioning
- Enclosure selection assistance
- Navigation between panel layout and schematics
- Auto wire routing in the Cabinet Layout layout
- Drilling layout generation

3D Panel+
PREMIUM/ENTERPRISE
- Schematic and 3D panel design integration
- Collision detection
- Consistency check with the schematic diagram
- Import/export support for DWG, DXF, IGES, STEP and STL
- Advanced 3D wire routing features
- Wireway fill calculation
- Optimal wire lengths calculated
- Manufacturing reports (drilling plans, wire cut lists, etc.)
- Direct output for CNC tools

Cabinet Thermal Calculation
PREMIUM/ENTERPRISE
- Checking the thermal properties of cabinets
- Power dissipation calculation of all equipment
- Ventilation or cooling calculation required to maintain temperature within user defined range

Harness Documentation
PREMIUM/ENTERPRISE
- Logical and physical electrical harnesses design
- Positioning of accessories
- Automatic routing of cables and wires into the harness according to the schematics
- Automatic calculation of harness wire and cable lengths and branch diameters

Jigboard
PREMIUM/ENTERPRISE
(Includes the module **Harness Documentation**)
- Scaled harness drawing to insert into production tables (formboard/jigboard)
- Control of the bend radius of the branches
- Formboard table splitting into different areas
- Wire grid insertion at the harness extremities
- Branch diameter display

End Fitting
PREMIUM/ENTERPRISE
- Definition of equipment required for wire end fittings
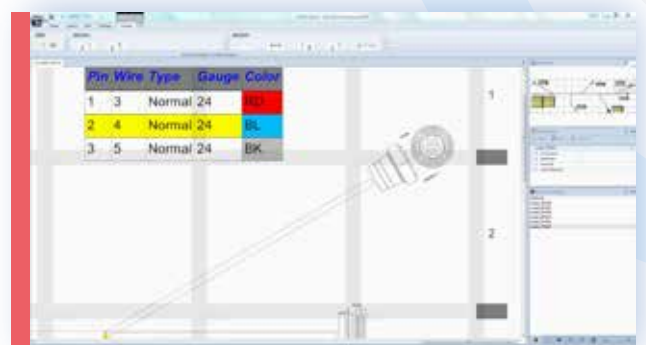
Options & Variants
PREMIUM/ENTERPRISE
- Single project created containing multiple configurations
- Validity tagging for symbol connections or connection points
- Hierarchical options/variants; validity defined as a Boolean expression
- Schematics and data export filtering

Automatic Diagram Generation
ESSENTIAL/PREMIUM/ENTERPRISE
- Automatic generation of electrical projects from a MS Excel file

SEE Electrical Expert – Additional modules

Environment Manager
ESSENTIAL/**PREMIUM**/**ENTERPRISE**
- Environment management
- "Local environment" updated according to "reference environment" (stored on server)
- Bidirectional environment synchronization
- Environment merging
- Environment differences detection
- Project object control in relation to those defined in the environment

Concurrent Engineering
PREMIUM/**ENTERPRISE**
(Includes the module **Environment Manager**)
- Multiple users working in the same project simultaneously
- Conflict management (simultaneous access to data)
- Modifications made by other users are instantly seen
- Online discussions (chat) tools

PLM Connect
Generic interface for **SEE Electrical Expert** to communicate with PDM / PLM / ERP tools (PTC-Windchill, ARAS, SAP, etc.)
- ❯ **ESSENTIAL** level
  ESSENTIAL/**PREMIUM**/**ENTERPRISE**
  - Document integration (schematics, part lists and associated documents)
- ❯ **PREMIUM** level (includes **ESSENTIAL**)
  PREMIUM/**ENTERPRISE**
  - Project data integration (mechatronic components, equipment, cables, etc.)
  - Equipment catalogue synchronization
  - Configuration management (Options & Variants)

PLM Connect Teamcenter
Enhanced interface for **SEE Electrical Expert** to work with Siemens TeamCenter.
- ❯ **ESSENTIAL** level
  ESSENTIAL/**PREMIUM**/**ENTERPRISE**
  - Document integration (schematics, part lists and associated documents)
- ❯ **PREMIUM** level (includes **ESSENTIAL**)
  PREMIUM/**ENTERPRISE**
  - Project data integration (mechatronic components, equipment, cables, etc.)
  - Equipment catalogue synchronization
  - Management of configurations (Options & Variants)

PLM Connect Smarteam
PREMIUM/**ENTERPRISE**
Enhanced interface for **SEE Electrical Expert** to work with Enovia Smarteam.
- Document integration (schematics, part lists and associated documents)

PLM Connect Solidworks PDM
PREMIUM/**ENTERPRISE**
Enhanced interface for **SEE Electrical Expert** to work with Solidworks PDM.

CAD Connect (**CATIA**, **SolidWorks**, **Creo**, **NX** or **Inventor**)
ENTERPRISE
- Equipment and cabling list export

Data Extractor
PREMIUM/**ENTERPRISE**
- XML, XLS format customized data export

Additional services

SEE Web Catalogue
- Online equipment catalogue with more than 800,000 equipment codes and 20,000 specific equipment symbols

SEE Parts Librairies
(Requires a subscription to **SEE Web Catalogue**)
- On demand specific equipment creation service

Additional packages
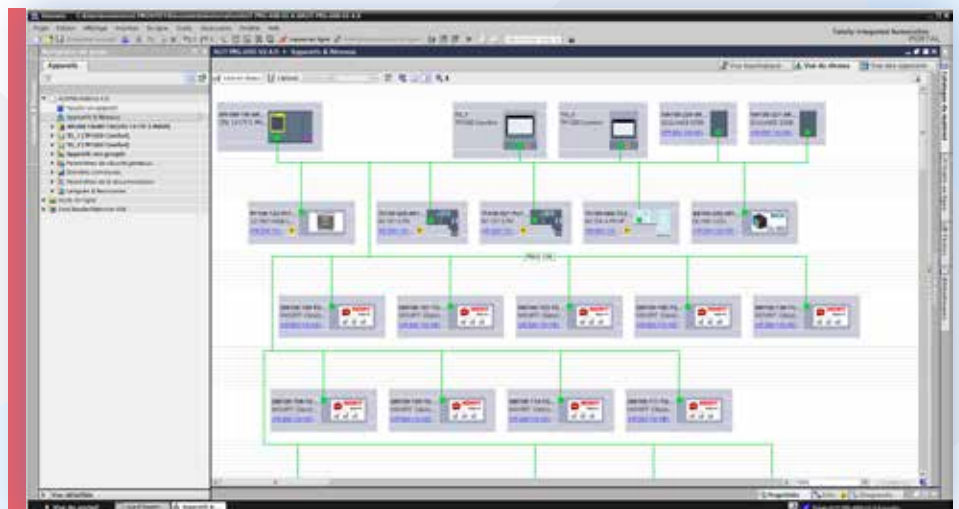
SEE Viewer and SEE Viewer Premium
- Document viewing and printing

SEE Generative View
- Equipment cabling schematics generation from logical harnesses data

SEE Project Manager and SEE Project Manager LT
- Document management
- Project user right management

SEE Electrical Expert additional modules

	ESSENTIAL	PREMIUM	ENTERPRISE
Multi-Languages	●	●	●
DXF/DWG Import	●	●	●
Open Data	●	●	●
Environment Manager	●	●	●
Simulation Connect	●	●	●
Automatic Diagram Generation	●	●	●
PLM Connect essential	●	●	●
PLM Connect Teamcenter essential	●	●	●
PLC		●	●
2D Panel+		●	●
3D Panel+		●	●
Cabinet Thermal Calculation		●	●
Harness Documentation		●	●
Jigboard (Includes the module **Harness Documentation**)		●	●
Options & Variants		●	●
End Fitting		●	●
Concurrent Engineering (Includes the module **Environment Manager**)		●	●
PLM Connect premium		●	●
PLM Connect Teamcenter premium		●	●
PLM Connect Smarteam		●	●
PLM Connect Solidworks PDM		●	●
Data Extractor		●	●
CAD Connect (**CATIA**, **SolidWorks**, **Creo**, **NX** or **Inventor**)			●