Scada Systems International

EDS – ELECDES DESIGN SUITE



EDS

EDS – Elecdes Design Suite

EDS – the Elecdes Design Suite is an electrical design software application that is easily the most functional and open E-CAD software available.

Comprehensive, easy to use

It is functionally without peer, as it contains tools suited to the diverse range of design sub-disciplines present within the electrical industry and these tools fully encompass the needs of each sub-discipline.

In every tool required by the electrical industry there is both variation in functional requirements and standards used, from region to region. EDS allows for this regional variation with its open architecture.

These qualities have evolved through 15 years of experience in the electrical market and the feedback of thousands of professionals from many countries. These qualities make the Elecdes Design Suite a premium tool for the discerning electrical professional.

The three main components of EDS, Elecdes, Instrument Manager and Paneldes, provide intelligent design and reporting tools for engineers and designers. Additional utilities (Protogen, Ebase, Database Editor, Cable Scheduler and Batch Printer) are provided with Elecdes and enhance the Elecdes Design Suite functionality. Your EDS agent can supply you with demonstration software upon request.

"Downer Engineering's power business in NSW, Australia, utilised the capabilities of the Elecdes and Paneldes Drawing Automation Suite in the generation of all loop diagrams, termination diagrams, 3D cable tray design, auto cable routing and cable scheduling for the Pinjarra Unit 1 Gas Turbine Power Station. Automatic generation of drawings from database information resulted in significant improvements in terms of drawing accuracy, quality control and change management over more conventional drawing production methods."
Rod Harle, Engineering Manager, Downer Engineering.



ELECDES

Comprehensive schematic and wiring diagram tools that are easy to use.
Elecdes is an extremely powerful tool for producing 2D electrical and instrumentation diagrams. Elecdes is used by Power Distribution, Switchgear and Control Systems designers. Elecdes consists of a set of fast tools and comprehensive libraries to be used with CAD and Database systems.

Elecdes greatly increases the speed, accuracy and efficiency by which designers can produce comprehensive documentation required in today's electrical projects. Elecdes increases efficiency by using its in-built tools to automate the repetitive tasks forced upon the designer, such as cross-checking circuits and the "sheet flipping" associated with this process. For example, relay cross-referencing and tag-name duplication checks can be a large proportion of the labour cost in many design projects. Elecdes totally automates these tasks!

"We can produce an electrical scheme in less than half the time required historically..." (the originals were produced using raw AutoCAD and a symbol library). "Much of the reduction was achieved in the automated generation of terminal strips and wiring diagrams...".
Engineering Manager, Amoco Production.

Elecdes has an open structure which allows flexible design practices and user standards. Elecdes can be simply customized to work your way. The Elecdes database interface "Ebase" allows the designer to work on the diagrams as the engineer works on specifications and tagging for those diagrams, using popular databases such as MS Access – true concurrent engineering.

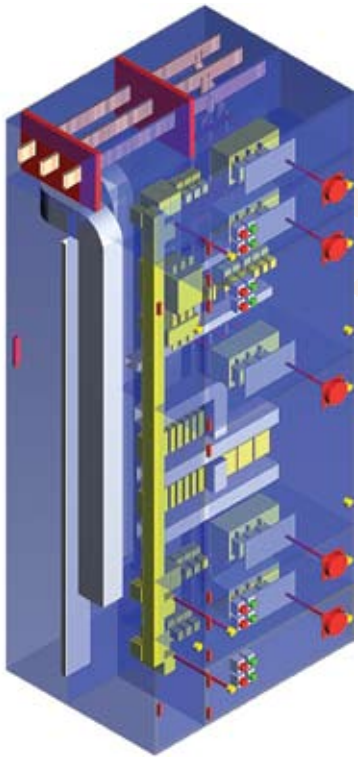
Elecdes connection automation is the most sophisticated on the market with fully automated terminal strip, wiring diagram and connection reports. Elecdes is not comprised of many expensive modules. Amongst the market leaders, Elecdes is the only software delivered as a complete all-inclusive electrical design solution.

"We have completed several projects with Elecdes and we are very pleased with how easy it is to use."
Engineering Manager, Manufacturing, St Louis.



World's first PC based wire/cable routing

Paneldes is a powerful software tool for the design of electrical panels and plant raceway systems. Paneldes is used by electrical plant or panel designers and wiring estimators.



PANELDES

Paneldes is composed of C++ and database modules containing parametric construction, design, routing and analysis tools. These tools accelerate the design process and increase your efficiency and accuracy. Producing General Arrangement drawings has never been so easy.

Paneldes calculates material quantities and wire/cable lengths. From a 3D panel model a 2D GA can be automatically produced, with auto dimensioning and collision checking. Wire or cable routing and interference checks are carried out automatically by Paneldes.

Paneldes can be integrated with wire labelling and wire cutting prefabrication equipment for larger manufacturers, assisting with automation of the manufacturing process.

Paneldes automation of wire pre-fabrication is estimated to have saved 40-50% in the production costs of our modular K-Series protection systems.
Engineering Manager, GEC UK

Paneldes is the World's first PC based cable and wire routing software. It takes into account raceway fill and cable factor, power compatibility, cable pulling schedules and bend radius when optimising cable routes. Where there are potential bottlenecks, Paneldes will also provide alternative routes. It produces cross section reports and will also create drumming reports which inform you where to cut and splice your cables, optimally reducing cable wastage. This software can produce phenomenal cost savings, particularly in the design of large projects like power plants.

Typically project costs can be over or underestimated by up to 30% because of the general inaccuracy of routing cables manually and interference checking is largely governed by guesswork. Depending on the size of your project, Paneldes can help you achieve significant savings on installation and material costs. In fact, one of our customers paid for the software and training several times over in their first project in savings on cable costs alone.

PROTOGEN

Produce thousands of diagrams – automatically
Protogen is a tool for producing many graphically similar "cloned" diagrams automatically from one or more master drawing prototypes. A relational structure allows the production of composite drawings from multiple templates.

Protogen is used by designers and engineers for Electrical/Instrumentation projects and can also be used for projects by other disciplines. Protogen has been used in hydraulic, mechanical and civil projects, saving time and money on each occasion.

In a fraction of the time historically needed to do so, diagrams can be produced by Protogen. Standard diagrams, that you currently use, can easily be converted to Protogen Templates and linked to a Database. The database-linked system allows you to accelerate your data entry process for diagram attributes and text by avoiding slow CAD editing procedures.

"Using Protogen, I have just produced over 200 loop drawings from about 16 different prototypes, with people changing their minds about information all the time, and I did it in less than 2 weeks, 80 hours. The others, 4 of them, have produced about 500 loop drawings manually using standard AutoCAD and it has taken them 3 months, how's that for productivity."
Engineer, Roche Energy Australia

Protogen is eminently suitable, and is one of the fastest methods available, for producing instrument loop diagrams and PLC output diagrams. Protogen produced diagrams are standard CAD DWG files and may be treated as such once produced i.e. they can be delivered to and modified by any AutoCAD owner.

INSTRUMENT MANAGER

A simple, yet powerful, instrumentation solution

Instrument Manager is a new Instrument design and documentation system, which can be fully integrated with Elecdes schematic, loop and wiring diagrams and Paneldes 3D modelling and cable routing. It is used by instrumentation or control system design engineers and automatically produces instrumentation documents such as Data Sheets, Loop Diagrams, Hook up Diagrams, Wiring /Terminal Strip diagrams, Instrument Index reports, Bill of Materials reports, Cables Schedule reports, Interconnection reports and many other documents.

Instrument Manager uses a familiar drag and drop method to link components and electrical connections and includes copy and paste, search and replace and many other "spreadsheet style" tools.

Database options include MS-Access and SQL Server. Your IT department have unlimited access to the data "behind the scenes" should additional processing of the instrumentation data be required. Linking to other SQL based applications is limitless and under your control.

Exports and Imports are available to most common formats to easily incorporate vendor and customer data. User "component" databases (e.g. P&ID database) can be live-linked with a minimum of effort allowing Instrument Manager to optionally access and modify data from your P&ID system.

Instrument Manager is a simple (and cost effective), yet powerful, alternative to your current instrumentation solution.

EBASE

True concurrent engineering with a database

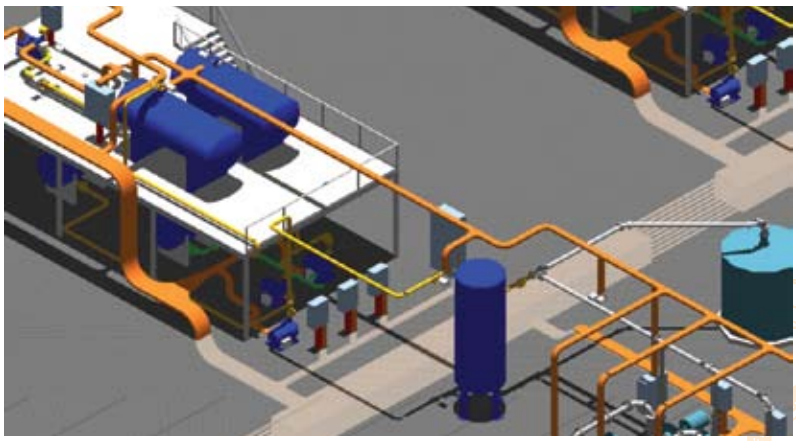
Ebase is a database tool enabling manipulation and collation of circuit diagram data. Ebase is supplied with Elecdes. It can be used by both designers and engineers.

Ebase consists of an "exe" program for reading and writing information in drawing and database files. It can automatically establish costs, materials and connection information associated with a project and if necessary rapidly modify data – project wide. This ability saves time and money by allowing direct access to thousands of files with drawing read/write and ODBC database read/write technology.

Ebase allows reports to be generated from multiple projects, consisting of thousands of drawings. An expensive CAD package is not required for the database manipulation associated with these projects. Project wide modifications to tagging and component specifications can be performed quickly and easily, with Ebase!

Ebase produces "warning" reports to alert the user to any suspicious/erroneous project data eg. short and open circuits, or duplications of device names. Ebase also includes a revision tracking feature and produces "revision comparison" reports detailing additions, deletions and modifications.

You can also use the database editor in Ebase to navigate directly from a specific component in the database table to its grid position on your project drawing.



CABLE SCHEDULER

Cable Management, Routing and Termination without CAD

Cable Scheduler is a tool for managing your plant or project cabling.

Cables can be directly added to the project database via Cable Scheduler, without CAD operations. Optionally, you can create primary cabling diagrams (Single Line and Cable Block diagrams). Cable Scheduler will integrate with any existing primary cabling diagrams and provide the means to manage all interconnection, routing and assignment for all of your project's cables.

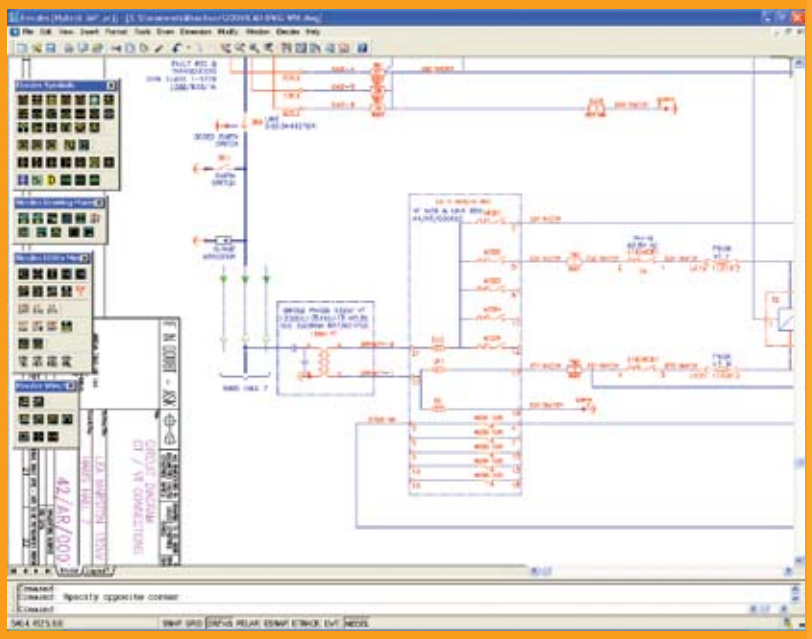
Cable Scheduler provides tools to terminate your project's cabling on the project's termination points. Where required, project enclosures, terminal strips and devices can be directly added to the project database with Cable Scheduler. CAD is not required to create these termination points. Termination points existing in your projects schematics (if any) are integrated into the termination process.

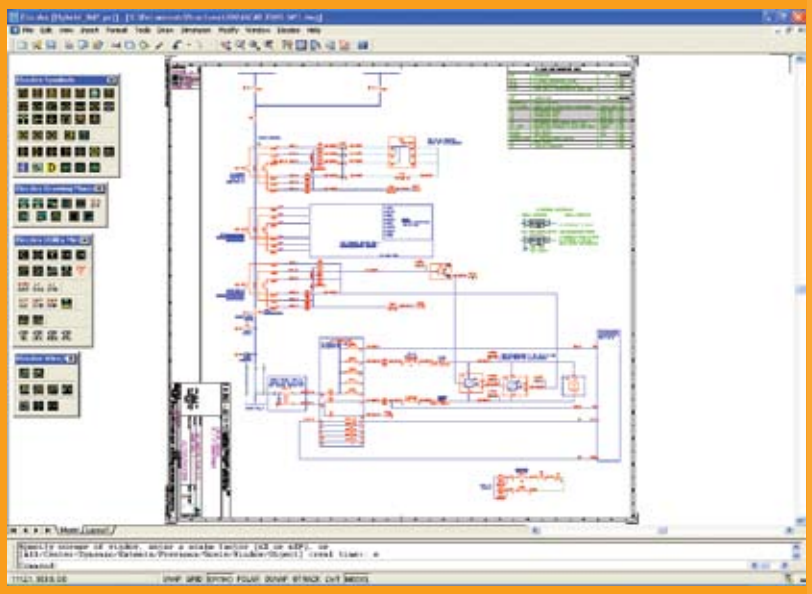
Cable Scheduler's termination operations can be done very simply with drag and drop methodology or in bulk i.e. many conductors can be terminated on a terminal strip (or disconnected) in a single operation.

Should your project have schematics included, you can "enhance" the current wiring of those schematics and "bundle" existing schematic wires by "assigning" them to the conductors of your inter-panel cables. This is done without opening the diagrams in CAD.

Cable Scheduler provides output of materials reports, "from/to cable and core schedules" as well as automatic terminal strip diagrams. This automated output does not require the drafting of any CAD schematics whatsoever – however, optionally, your project can include any of the diagrams produced by Elecdes.

Cable Scheduler integrates with and provides an enhanced interface to the Paneldes cable routing system. This interface allows incremental and semi automatic routing for those routing projects where full automation is not possible (or desirable) in the cable routing process. This interface is modern and easy to operate and augments the standard routing functionality of Paneldes.





TECHNICALLY SPEAKING...

Paneldes Features

- 3D parametric panel and plant Electrical layout.
- Parametric shapes for Enclosures, Motors, Devices, Terminal strips, Instruments, Ducting, Panduit, Conduit, Fittings, Accessories, Screw arrays, Cut-outs, Tray, Trench, Duct-bank.
- Database driven component sizing via Elecdes catalog databases [ODBC].
- Automated "incremental" tag name defaulting – with user programmable tagnames.
- Import components from your schematics and other circuit diagrams, with component placement cross checks.
- Automated wire cutting length and route calculation and optimization, suitable for wire cutting and labelling machine use.
- Automated wire label list.
- Automated BOM.
- Database driven global editor for changing tags, specs and sizes of multiple components in a single operation.
- Automated 2D exploded view generation.
- Automated dimensioning.
- Automated collision checking.
- Automated cable length and route calculation.
- Automated cable "drumming" calculation.
- Automated cable "tray fill" calculation.
- Automated raceway consistency checking.
- Automated visual routing diagnostics functions.
- Up to 32000 levels of power separation/ discrimination in cable tray network.
- Cable tray cross section reports.
- On Line - Documentation and "Movie" based tutorials.
- Intelligent component array insertion.
- Multiple viewport SNAP and ZOOM EXTENTS.
- Database utilities.

Protogen Features

- Create and maintain a large set of 2D and 3D drawings with a few template (or "prototype") diagrams and databases of your own design.
- "Relational" database structure allows composite drawings to be produced from multiple template drawings and databases.
- Use your favourite ROW/COLUMN editing database or spreadsheet to manage your data.
- Create your database with your existing tools or use Protogen to create a database to "fit" a set of prototypes.
- Templates/ Prototypes can be created with Elecdes or can be created from diagrams which you currently use.
- "ProtoEdit" tools provided to rapidly define attributes and text as database fields.
- Map database field names to CAD text or attributes.
- Substantially cut down annotation work with the use of Series Numbers and Mathematical Relations to generate your data.
- Develop your own macros, queries or Vbasic for generating circuit data.

Elecdes Features

- Over 12000 electrical symbols to ISA/IEC/ IEEE/AS1102 specifications.
- Database/Catalog driven component specification and global editing.
- Automated circuit construction for schematics, one line, wiring and loop diagrams.
- Over 200 000 manufacturers parts in Elecdes supplied catalogs.
- Integrated database for automated reporting and 2 way database – drawing link.
- Metric and Imperial versions.
- Multi line breaking and repair.
- Composite Symbol librarian, allowing customized symbol libraries.
- Block manager for easy global customization of block attributes, rapid global change from one symbol type to another.
- IEC and ANSI naming conventions are provided.
- Automated wire numbering, rung numbering and connect dot placement.
- Automated "incremental" tag name defaulting with user programmable tagnames.
- 2 line and 3 phase drawing macros.
- Ladder diagram construction macros.
- PLC I/O card construction macros.
- Automated Terminal strip generator and wiring diagram generator.
- PLC module builder with a library of 1000's of current I/O cards from several manufacturers.
- On line relay contact/coil cross referencing.
- On line tag name duplication cross referencing.
- Component navigation tools to easily find and view components spread over many sheets.
- On diagram BOM and cable list tables.
- Automated database links for globally editing tag, wire, terminal and specification data.
- On Line Documentation and "Movie" based tutorials.
- Batch Plotter for printing large numbers of drawings without operator presence or CAD package presence.
- Softsnaps to existing wires.
- Fast intelligent Move/Copy/Erase/Array commands for electrical components.
- Real-time resizable icon menus.

Instrument Manager Features

- Fully Integrated with Elecdes schematic, loop and wiring diagrams and Paneldes 3D modelling and cable routing.
- Drag and drop "explorer" or tabular "spreadsheet style" environment.
- Row and column copy/paste, search and replace, filter, sort and increment and many other "spreadsheet style" tools.
- Instrument data sheet ratings and specifications are maintained in "per instrument type" tables that are largely user definable.
- Loops and terminal strips are graphically displayed as you create connections for those loops/strips.
- Automated production of:
  - Data Sheets (in MS-EXCEL Format).
  - Loop Diagrams (in AutoCAD Format).
  - Hook up Diagrams (in AutoCAD Format).
  - Wiring/Terminal Strip diagrams (in AutoCAD Format).
  - Instrument Index report.
  - I/O report.
  - Loops report.
  - Cable from/to report.
  - Conductor connection report.
  - Materials report.

Cable Scheduler Features

- Fully Integrated with Elecdes schematic, one line diagrams, cable block diagrams and Paneldes 3D modelling and cable routing.
- Drag and drop "explorer" or tabular "spreadsheet style" environment.
- Row and column copy/paste, search and replace, filter, sort and increment and many other "spreadsheet style" tools.
- Define or import cables, wires, enclosures, terminal strips and devices.
- Terminate all project conductors and cables.
- Route all project cables.
- Manage project raceway and routing.
- Assign schematic wires to project cabling as required.
- Automated production of:
  - Wiring/Terminal Strip diagrams (In AutoCAD Format).
  - Cable from/to report.
  - Conductor connection report.
  - Materials report.

Ebase Features

- Bill of materials report.
- Cables Schedule report.
- Interconnection reports.
- Automated production of USER defined reports.
- Project Management and Revision tracking.
- Automated project drawing index list.
- Automated PLC IO CARD index list.
- Automated materials quantity summary report.
- Automated wire label/ferrule lists.
- Tag name duplication cross referencing report.
- Automated warnings summary.
- Revision comparison reports for all parts and connections.
- Database choices of MS Access and SQL Server.

Technical Support

All Scada Systems offices can provide a high degree of Technical Support for the EDS products. Phone support is available globally 24 hours per day in Asia, Europe and the Americas.

Extended Maintenance and Support contracts (EMS)

Scada Systems offer support contracts inclusive of all software upgrades, free email/ phone/fax support, and development request priority. These contracts are offered on an annual subscription basis.

Languages/International

EDS and all of its documentation is now supplied in English, Japanese, French, Spanish.

Hardware and Software required

Windows XP and Windows 2000, PC with Pentium 4 3.0+GHZ/1024x768+ Video/512MB ram/80GB HDD or similar. For cable routing and instrumentation users, 1GB+ ram and high speed networking is recommended.

Software Compatibility

AutoCAD 2000-2007, FelixCAD 5.0, PowerCAD 6.0, Microsoft Excel, Microsoft Access, DBASE, Oracle, ANY Windows compatible network.

Licensing

EDS software can be locally or network licensed.

Development Details

EDS development is now shared between multiple Scada Systems Offices. The development team includes programmers, engineers and designers who, between them, share 100s of man-years experience in the field of electrical engineering.

The software is currently written in C and C++. Over 1.5 million lines of programming code make up the programs of EDS. The code is compiled into windows application programs in executable format (EXE) and also dynamic link library format (DLL, ARX).

Additional user development, for those with programming resources who wish to create their own automation, is possible through ODBC, ARX, VBA, VB and COM.



SCADA SYSTEMS LTD

Scada Systems Ltd was founded in 1985 as a control and data acquisition engineering consultancy. The founding employees and directors were electrical engineering graduates with international field experience.

In the late 1980s Scada Systems identified the need for automated electrical design software. To fulfil this need, Scada Systems set about establishing the world's leading suite of instrumentation, panel and electrical design software.

The Elecdes Design Suite is now in it's 14th year of development and we support a large user base in Europe, the Americas, the Middle East and the Pacific Rim.

In 1993 Elecdes won the coveted Autodesk "Developer of the Year" award, the only E&I enhancement to do so. Having its origins and expertise in this area, Scada Systems has been able to provide clear, fresh solutions to engineering design problems which always have the user, an electrical or instrumentation designer/ engineer in mind.

Scada Systems

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