

# Elecdes Design Suite

The World's Richest Set of Design Tools for  
Electrical & Instrumentation

# Elecdes Design Suite

EDS - the Elecdes Design Suite consists of electrical design software applications that are easily the most functional and open E-CAD software available.

Comprehensive, easy to use

EDS, the **Elecdes Design Suite**, is a suite of electrical design software applications that has functionally without peer. EDS contains many 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 over 30 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 a full set of intelligent design and reporting tools for engineers and designers. Additional utilities (such as Protogen, Ebase, Block Manager and Cable Scheduler) 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.**

**ELECDDES:** Comprehensive schematic and wiring diagram tools that are easy to use.

Elecdes is an extremely powerful tool for producing 2D electrical and control diagrams. Elecdes is used by Power Distribution, Switchgear and Control Systems designers. Elecdes consists of highly productive design tools and also a set of comprehensive libraries to be used with CAD and Database systems.

Elecdes greatly increases **efficiency** by using its in-built tools to automate repetitive tasks forced upon the designer, such as automatic circuit cross referencing, project wide global



attribute editing and automated wiring diagram construction. Labor costs in your design projects can be significantly reduced by these efficiency gains.

Elecdes increases **accuracy** by checking for circuit errors such as inconsistent cross sheet continuations, open circuits, short circuits and duplicated tag use. Accuracy improvements reduce "sheet flipping" checks and the "rework" associated with errors. This leads to obvious cost reduction in your design projects.

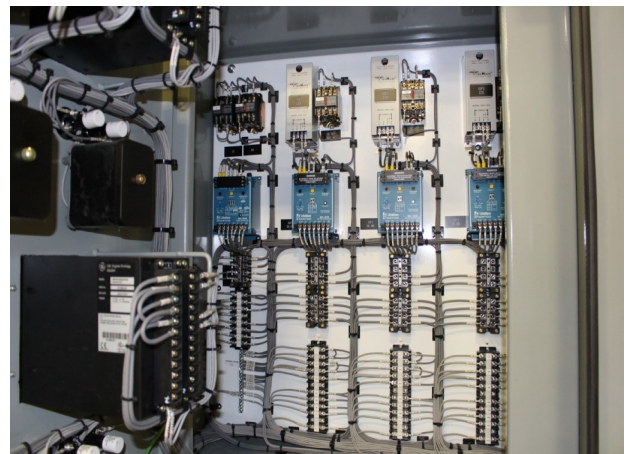
*"We can produce an electrical scheme in less than half the time required historically..." (the originals were produced using raw AutoCAD and a symbol library). "Much of the reduction was achieved in the automated generation of terminal strips and wiring diagrams..."*

**Engineering Manager, Texas, USA."**

Elecdes has an open structure which allows flexible design practices and your choice of standards. Elecdes can be simply customized to work your way. The Elecdes database interface "Ebase" allows your designers to work on the diagrams as your engineers work on specifications and tagging for those diagrams, – true concurrent engineering.

Elecdes connection automation is the most sophisticated on the market with fully automated terminal strip diagrams, wiring diagrams and tabular connection reports.

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



## INSTRUMENT MANAGER

### A simple, yet powerful, instrumentation solution

Instrument Manager is an Instrument design and documentation system, which can be fully integrated with Elecdes and Paneldes 3D modelling and cable routing.

Instrument Manager is used by instrumentation or control system design engineers to automatically produce instrumentation documents such as Data Sheets, Loop Diagrams, Hook up Diagrams, Wiring /Terminal Strip Diagrams, Instrument Index, Bill of Materials, Cable Schedule, I/O List, Interconnection Reports and many other deliverables. This automated production of deliverables greatly increases your team's **efficiency** and **accuracy** and reduces your project costs.

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

Instrument Manager database options include MS-Access and SQL Server. Should additional processing of the instrumentation data be required, your IT department have unlimited access to the data "behind the scenes".

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

Linking to other SQL based applications is limitless and under your control. This automated transfer of data greatly increases your team's **efficiency** and **accuracy** which provides significant project cost reduction.

Instrument Manager can be integrated with Cable Scheduler allowing your team the benefit of a single database for their I&E project, which greatly increases your **accuracy**, lowers your re-work and reduces your project costs.

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



## PANEDES

Paneldes Raceway is a powerful software tool for the design of plant raceway systems.

Paneldes Raceway is an application that contains parametric construction, design and analysis tools. These tools accelerate the design process and increase your **efficiency** and **accuracy**.

Paneldes Raceway is also the **World's first fully functional PC based cable and wire routing software**.

For 3D modelling Paneldes Raceway provides fast, easy to use tools for creating cable tray and duct bank, including polyline trace and links to supplier parts libraries.

When optimising cable routes, Paneldes Raceway takes into account raceway fill, power compatibility, cable pulling schedules and bend radius. Where there are potential bottlenecks, Paneldes will also provide diagnostics information to assist in finding the best route solution and can easily provide alternative routes.

Paneldes Raceway produces cross section reports and drawings and will also create drumming reports which inform your team on where to cut and splice your cables, optimally reducing cable wastage.

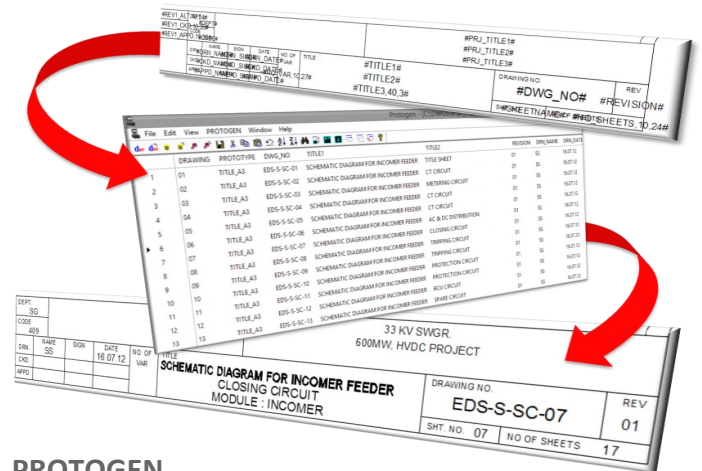
Paneldes Raceway software can produce significant cost savings, particularly in the design of large projects where spreadsheet data becomes unmanageable. Historically, without Paneldes, cabling project costs can be over or underestimated by up to 30% because of the inaccuracy of manual routing methods (including spreadsheet use). Historically raceway filling has been largely governed by guesswork and approximation.

Through the use of smart electrical design automation and by enhancing the accuracy of your methods, Paneldes Raceway can help you achieve significant savings on design, installation and material costs. It is common for trained Paneldes Raceway users to recover the cost of the software and training on their first project.

*"Paneldes Raceway automation is estimated to have saved 40-50% in the production costs of our modular K-Series protection systems."*

**Engineering Manager, Stafford, UK.**

Paneldes Raceway integrates with Instrument Manager and Elecdes, which are providers of upstream cable schedule data for routing. Paneldes Raceway also integrates with the EDS **Cable Scheduler** which provides a "database centric" cable management interface for all Paneldes Raceway cabling processes.



## 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 CAD owner.

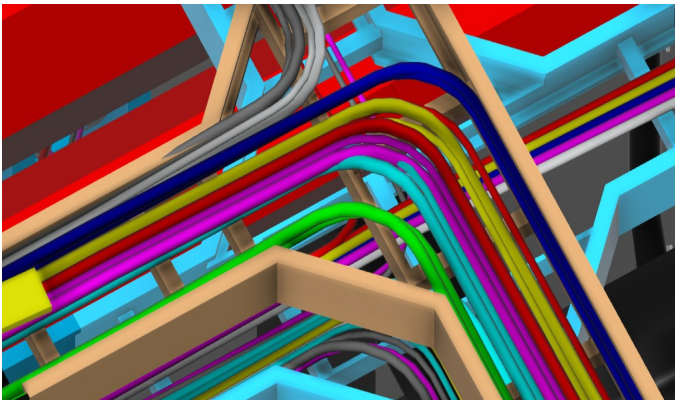


## CABLE SCHEDULER

### Cable Management, Routing and Termination without CAD

Cable Scheduler is an SQL database tool for managing your plant or project cabling. It manages creation, integration with upstream circuits, termination, routing and materials.

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) and Cable Scheduler will absorb these 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. Cable Scheduler also provides a great user interface from which to route your cables. Routing can be manual and "model-less" or can integrate with your Paneldes Raceway 3D model.

Cable Scheduler's routing includes automated tools for calculating the route, the length, the cross sections and the raceway filling hence saving your team significant time on your project.

Cable Scheduler's routing includes power segregation, room segregation, transit management and cable drumming, all of which enhance your teams **accuracy** and **efficiency** and therefore it can lower your project costs.

Cable Scheduler allows you to manage the status of a cable through the design and construction process. Cables can be tagged with multiple levels of status from "unrouted" through to "installed".

Cable Scheduler provides report outputs for materials, pull cards, from/to cable and core schedules, drum lists, cross section reports and many other reports.

Cable Scheduler is integrated with your Elecdes drawing project, your IM instrumentation project and your Paneldes raceway model. It can also import upstream component and cable information from other third party sources via its smart SQL, Access and Excel importing system.

## 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!

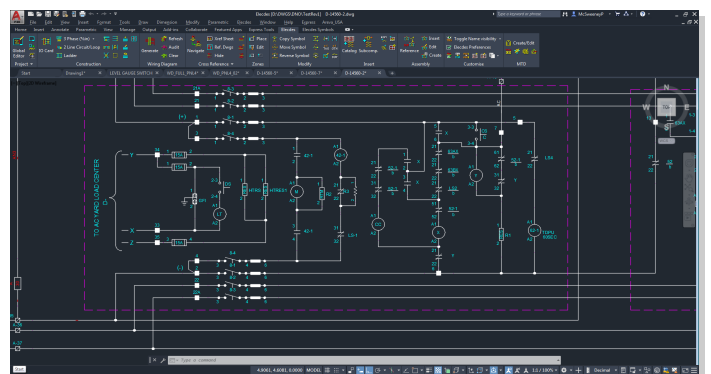
Ebase produces "warning" reports to alert the user to any suspicious/erroneous project data e.g. short and open circuits, or duplications of device names. Ebase also includes a revision tracking feature and produces "revision comparison" reports detailing additions, deletions and modifications.

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.

## TECHNICALLY SPEAKING...

### Elecdes Deliverables

- Schematics / Elementaries.
- Single Line Diagrams.
- Cable Block Diagrams.
- Loop diagrams.
- Wiring Diagrams /Terminal Strip Diagrams.
- 2D Panel Layout Diagrams.
- Bill of Materials and Quantity Summary Reports.
- Wiring Reports.
- Cable Schedule and Core Schedule.
- Drawing Index & I/O List.



## Elecdes Features

- Over 15000 electrical symbols to ISA/IEC/IEEE/AS1102 specifications.
- Database/Catalog driven component specification and global editing.
- Automated circuit construction for schematics, wiring and loop diagrams.
- Supply upstream compatible Data to Paneldes 3D and Cable Routing.
- Over 1M manufacturers' parts in Elecdes supplied catalogs.
- Integrated database for automated reporting.
- Project wide Global Editor inc. 2 way database – drawing link.
- Metric and Imperial versions.
- Multi line breaking and repair.
- Composite Symbol librarian, allowing customized symbol libraries.
- IEC and ANSI naming conventions are provided.
- Automated wire and rung numbering and connect dot placement.
- Automated user programmable "incremental" tag names.
- 2 line and 3 phase drawing macros.
- Ladder diagram construction macros.
- PLC I/O card construction macros.
- Easy saving of commonly used sub-circuits as "assemblies".
- Fully automated Terminal strip and wiring diagram generation.
- PLC card builder. Library of 1000's of cards, multiple manufacturers.
- On line relay contact/coil cross referencing.
- On line tag name duplication cross referencing.
- Multi sheet navigation tools to easily find and view components.
- In diagram BOM and cable list tables.
- On Line Documentation and "Movie" based tutorials.
- Full Web based training available.
- Batch printer.
- Soft-snaps to existing wires.
- Fast intelligent Move / Copy / Erase / Array commands for electrical components.
- Real-time resizable icon menus.
- Export to PDF with hyperlinks for component references.
- Manual update of drawings.
- User control over drawing updates and edits.
- All tools and libraries are user customisable (Report format, Symbols, attributes, wiring diagrams, fonts, colours, layers, Grids and Zones, Ribbon Menu).



## Instrument Manager Deliverables

- Loop Diagrams.
- Motor Elementaries.
- Datasheets.
- Test Sheets.
- Hookup Diagrams.
- Wiring Diagrams /Terminal Strip Diagrams.
- Instrument Index.
- Bill of Materials and Quantity Summary Reports.
- Wiring Reports.
- Cable Schedule and Core Schedule.
- Diagrams List.
- I/O List.

## Instrument Manager features

- Instrumentation Detailing and Design.
- SQL Server or MS-Access.
- P&ID SQL database links—AutoCAD P&ID/Plant and CADWorx P&ID.
- Import connections from an existing Cable Schedule.
- Supply upstream compatible Data to Paneldes 3D and Cable Routing.
- Mass, project wide, editing of components.
- User-defined tables and views.
- Tree view allows user to look at associated and linked components.
- Deliverables (e.g. Loop drawing) generated from templates/typical.
- 2 way data link with Excel Datasheets. Edit or Output any Datasheet.
- Import instruments and other component datasheets in IM.
- Diagrams format is DWG, datasheets format is XLSX.
- Preview of instrument Loop connection.
- Floating list window, Connection preview window.
- Navigate to related components, linked diagrams and templates.
- Synchronise with Elecdes drawings.
- Name sequence for components.
- Export data to Excel, dbf and text file.
- Report with SQL Server Report Services (SSRS).
- SSRS Reports made accessible to other users, via a browser.
- View Reporting inside IM when using SQL.
- Add new "user component type" to the project.
- Create a custom map file allowing import of data from an external Database or Excel.
- Generate Terminal Strip Diagram, Hook-up Diagram and Loop Diagram without a CAD engine installed.
- View output drawings in PDF.
- Raise issues (communications between project users) with highlights and comments.
- Save and load list filtering of components.
- User interface offers programmable highlighting.
- Cloud version available.

## Paneldes Raceway deliverables

- 3D Electrical Model.
- Cross section drawings.
- Materials Report and Quantity Summary.
- Cable Schedule with length.
- Cable Routing and Pull cards.
- Raceway filling and Cross Section.
- Transit report with filling and seal block materials.
- Cable Drumming.
- Center of Gravity Report.
- Construction Drawings.

## Paneldes Raceway Modelling

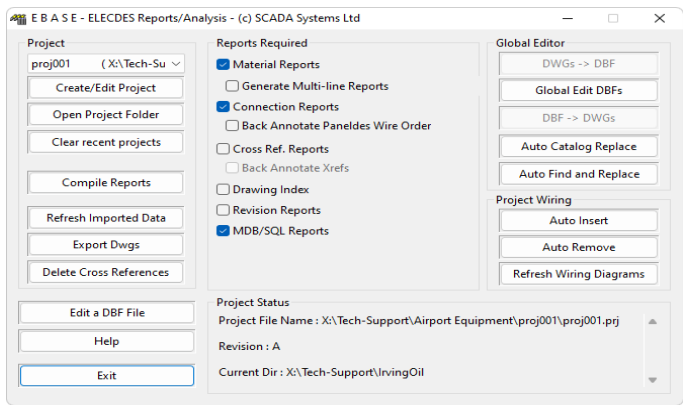
- Parametric construction of 3D raceways from a Catalog/library.
- Construct Transits from default a Catalog/library.
- Realistic 3D raceways constructed by tracing a 3D polyline.
- Automated selection of fittings based on active Raceway sizes.
- Automated fittings break into straight segments.
- Duct bank editor.
- Accurate BOM for raceway and components.
- Free access to default catalogs and 3D blocks.
- Automated Insert of components from a table of positions.
- Catalog based components.
- Project wide edit of components using Global Editor.
- Clash detection.
- All CAD functions are retained (e.g. 3Drotate, stretch, move or copy).

## Cable management with Cable Scheduler

- Create interconnection of Cables in SQL Database.
- Sync Paneldes model in SQL Database.
- Ability to import cable list/Schedule from Excel, SQL or Access.
- User defined folders for management/organisation.
- Manufacturer Catalog based components.
- Bulk edit operations of components is made easy in SQL Database.
- Realistic cable route preview and diagnostics.
- Live fill percent information in SQL Database.
- Staged Cable management.

## Paneldes Raceway and Cable Routing

- Automated routing.
- Realistic cable route preview and diagnostics.
- Group cable routes by location.
- Segregate cables by power or room.
- Divide cable trays to carry more than one type of cable.
- View divided fill percent of a raceway segment or transit.
- View Cable route in CAD or Navisworks.
- Component information into Navisworks.
- Routing Diagnostic tools for bad routes.
- View cables in a raceway cross section.
- Add manual routes (optional).
- Add guided routes with waypoints (optional).
- Manage cable route locking status (Locked, Issued and Pulled).
- Pull card reports for site cable laying contractors.
- Transit fill report with auto block selection for frames.
- Auto cable arrangement in Transits.
- Cable tray and Transit cross-sectional drawing.
- Centre of gravity reports.
- Export Cable routes/length/etc to Navisworks.



## Ebase

- Manage projects and project drawings (and DSN).
- Selection of type of reports to be generated.
- Auto cross-referencing and Auto-wiring functions.
- Auto Find and Replace function.
- Export DWGs to PDF.
- DWG to DGN converter.
- Project wide Global Edit of drawings and components.
- Export to PDF with hyperlinks for component references.

## Block Manager

- Bulk operations (many drawings, many symbols in batch).
- Change properties of attributes.
- Add new attributes to a block.
- Swap blocks in N number of drawings at a time.
- Redefine blocks in N number of drawings at a time.
- Replace style of one symbol with another in N number of drawings.

## Protogen and Database Editor

- Link with SQL, Excel and Access.
- Drag and Drop DBF file on to EXCEL.
- Compute values with Excel like functions.
- Create typical with templates.
- Generate clone drawings with from typical/template + data tables.
- Get reports from Protogen drawings if using Elecdes symbols.
- Sub-templates used for different parts of circuit to be configured in a drawing.

## EDS Setup

- Manage Client Specific libraries.
- Assign admin privileges to users.
- Copy, save and Share EDS settings to other users.
- Setup catalogs in Access, SQL and DBF.
- Manage list of manufacturers to be used.
- Selection of warnings to be displayed.

## Languages/International

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

## Hardware and Software required

Windows 8 thru to Windows 11, PC with Intel I5/I7, 16GB ram/1 TB HDD or similar. For cable routing and instrumentation users, 32GB+ ram, SSD and high speed networking is recommended.

## Software Compatibility

We support compatible O/S, CAD and Office tools from current versions and for older versions (up to 7 years old) for: AutoCAD, Microsoft Excel & Access, DBASE, SQL Server. We support a Windows compatible network.

## Licensing

EDS software can be locally or network licensed.

## Development Details

EDS development is 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, C++ and C#. Over 3 million lines of programming code make up the programs of EDS.

## 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 its 4th decade development and we support a large user base in Europe, the Americas, the Middle East and the Pacific Rim.

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.

