

1P: 0.145
1I: 0.145 kA
1%: 11.719 %

1P: 0.234
1I: 0.234 kA
1%: 24.698 %

P: 0.75 MW
Q: 0.56 MVA

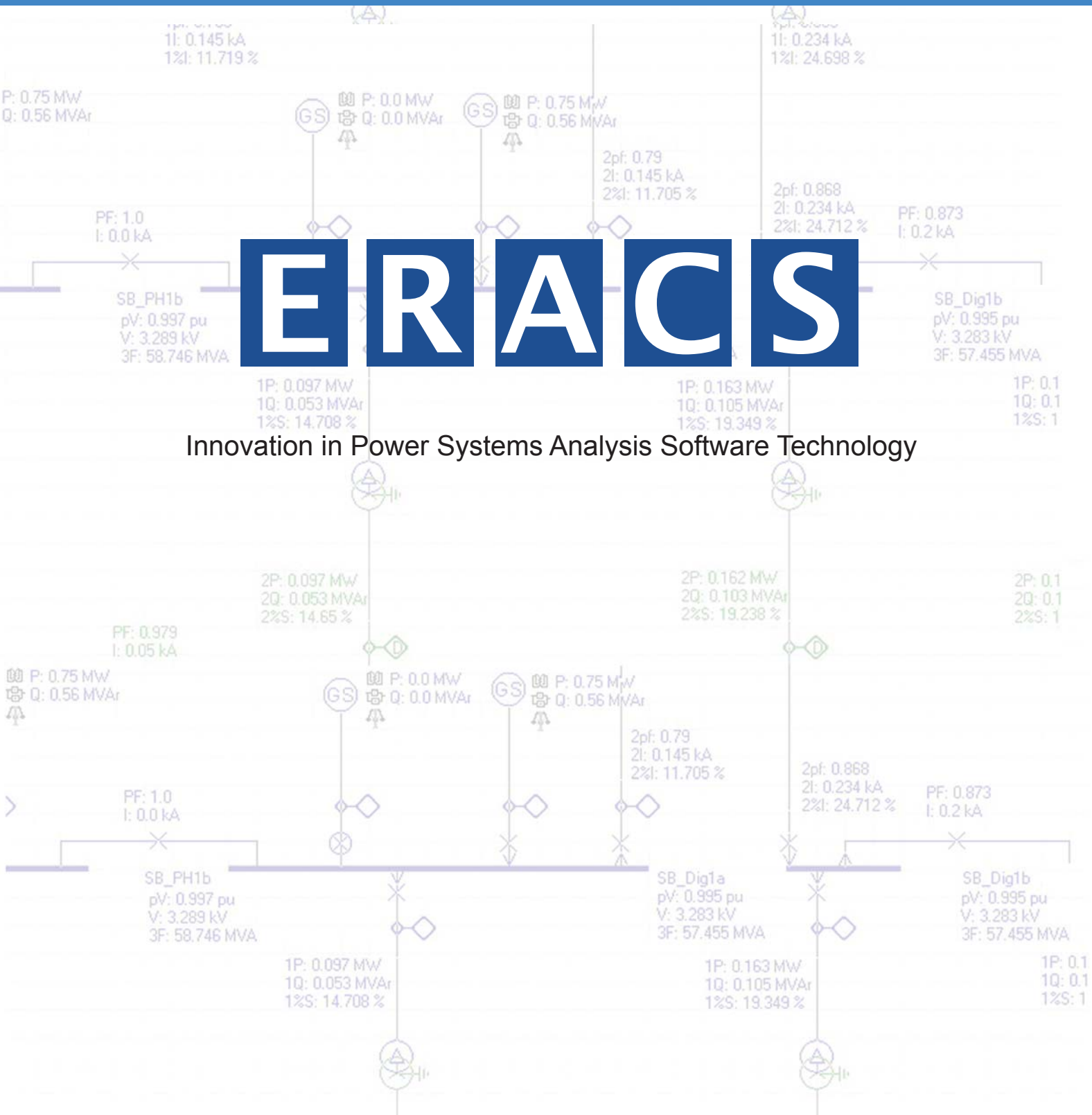
GS P: 0.0 MW
Q: 0.0 MVA

GS P: 0.75 MW
Q: 0.56 MVA

ERA

TECHNOLOGY

ERACS - Electrical Power Systems Analysis Software



Innovation in Power Systems Analysis Software Technology



The economic design of power systems is critically dependent on being able to predict the system behaviour under both normal and abnormal operating conditions. Hand calculations and estimates are possible but increasingly expensive in engineers' time and run the risk of introducing errors resulting in significant safety and reliability implications.

ERACS is ERA's suite of power systems analysis software. It allows users to simulate electrical power system networks quickly and easily to judge their correct, safe and timely operation.

ERACS software is at the forefront of development taking account of both the continuing pressure for ever easier operational software and the increasing technical needs of modern engineering.

The name ERACS is synonymous with quality, reliability, accuracy, ease of operation and adaptability to changing market needs.

Benefits

Using ERACS to conduct power system analysis, clients are able to:

- save costs
- reduce risk
- improve system quality
- increase reliability and safety.

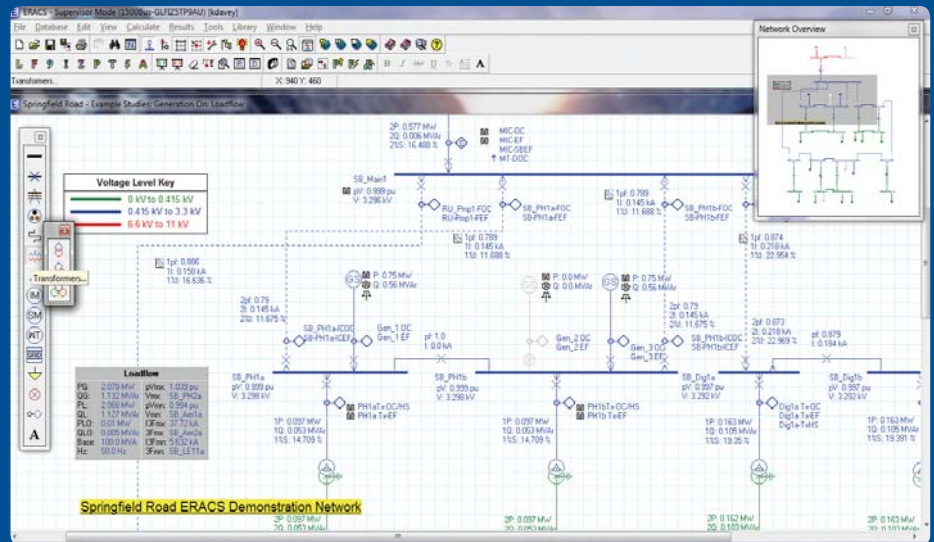
System

ERACS software is PC-based, fully integrated and has an easy to use interface. The data is entered once only in a central database, making data management a very simple procedure. Networks for simulation by ERACS may be either radial or fully interconnected systems or a mixture of both (HV to LV).

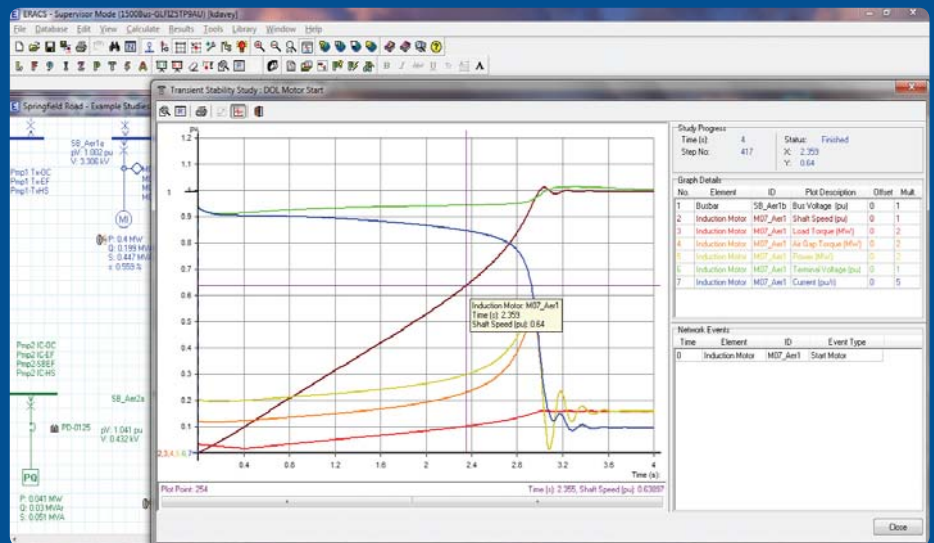
ERACS software options

The following program modules and options are available:

ERACS Screenshots



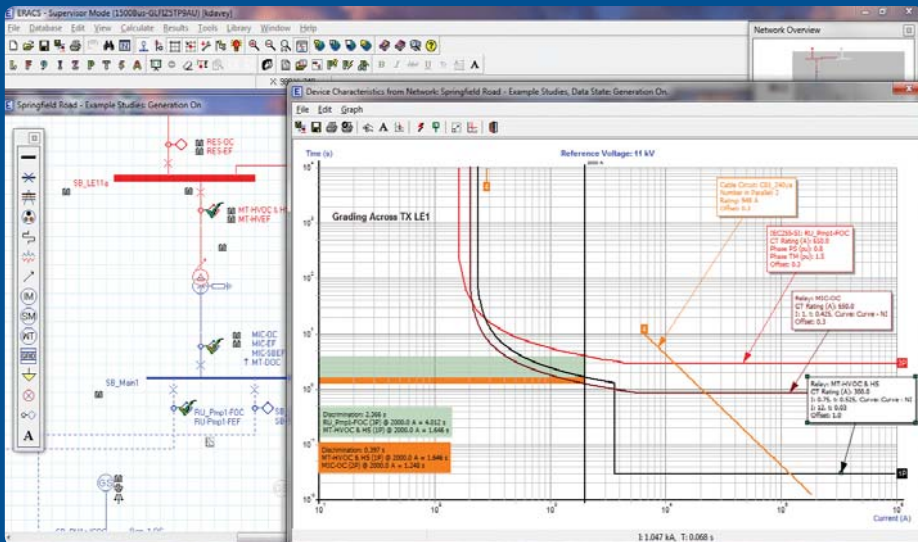
Loadflow



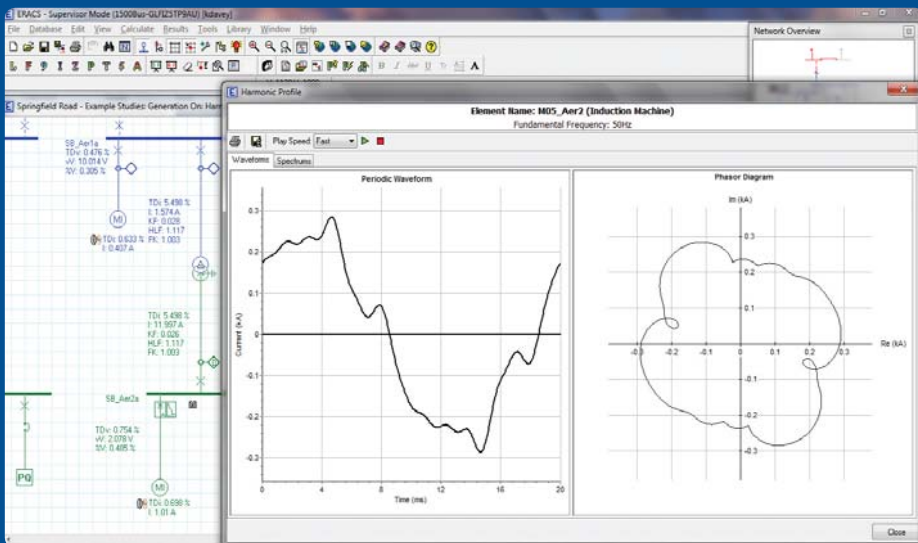
Transient Stability

ERACS - Electrical Power Systems Analysis Software

Innovation in Power Systems Analysis Software Technology



Protection Co-ordination



Harmonics

- Graphical User Interface
- Loadflow
- Fault (classical)
- Fault IEC909
- Arc Flash Hazard
- Harmonic G5/4
- Harmonic Injection
- Harmonic Impedance
- Transient Stability
- Protection Co-ordination
- Universal Dynamic Modeller
- Stand Alone or Network Versions
- 10, 50, 100, 150, 300, 500, and 1500 Busbar Versions.

Quality

ERACS is developed under ERA Technology Ltd's ISO 9001 certified quality system.

Why ERACS?

The ERACS suite of power systems analysis software is in constant use by experienced ERA power engineers for system study purposes. They have direct input into the program development to incorporate best practices currently in use within the electrical industry. ERACS' diverse user base (including offshore, marine, mining, utilities, transport and academia) is encouraged to contribute to the development and direction of the programs. In this way the ERACS programs are constantly moving forward, providing real benefits in terms of reduced study times and improved technical capability to users, and meeting the specific needs of engineers with practical problems to solve.

The provision of a dedicated ERACS user website and support hotline further benefits its user base. Staffed by electrical/software engineers with a great depth of understanding of the latest programming techniques and tools, they also have direct access to ERA's own leading power systems engineers for technical support. The ERACS support team prides itself on its fast response time to technical queries from its software users.

- The ERACS Loadflow program models radial and mesh/interconnected AC three phase LV to HV systems with multiple generation sources. Loadflow calculates: system losses, power/VAr/current flows (on screen arrows indicate direction), transformer tap settings, equipment loading and voltage profiles (plus many more). As with all ERACS programs, results can be selected and displayed on the single line diagram or saved to printed output and may be exported to other applications for the generation of user customised reports.
- The ERACS Fault programs (Classical & IEC909) allow all classical fault types to be applied to system elements with an additional survey option to automate this process.
- The ERACS Harmonic Injection program allows multiple harmonic sources to be connected to the system and their effect calculated. Results include total harmonic voltage and current distortion and their individual harmonic components in both graphical and numerical formats.
- The ERACS Harmonic Impedance program calculates the harmonic impedance profiles between selected system busbars, indicating possible system resonance.
- The ERACS Harmonic G5/4 program allows the connection of non-linear equipment to be assessed against the planning levels specified in ER G5/4.
- The ERACS Protection Co-ordination program is four programs in one and includes: Protection Device Setting: Relays, fuses and circuit breakers are added from the ERACS data library to the single line diagram. Settings and discrimination times are then graphically selected.

Protection Stability Checking: Having selected the desired settings the protection program checks that no devices operate under steady state loadflow conditions or as a result of network reconfiguration.

Protection Dynamic studies: Any one of the classical fault conditions can be applied to any part of the network to evaluate the dynamic operation of the protection scheme. ERACS steps through stage by stage to confirm (or not) that the location of the fault can be isolated in an acceptable manner.

Protection Analyser: This single operation allows every element in the network to be faulted individually and the corresponding protection scheme reactions logged. User friendly graphical reporting allows weaknesses and failures in the total protection scheme to be quickly identified. All backed up by a large library of equipment and manufacture's data

- The ERACS Arc Flash Hazard Assessment program examines the electrical network to determine the severity of arc flash hazards and recommends appropriate PPE to IEEE 1584 and NFPA 70E. Warning labels can also be generated (and customised) from the tabulated results.
- The ERACS Transient Stability program allows dynamic system behaviour to be studied (e.g. motor starting, fault application, load application, load rejection and generator behaviour). A timeline of multiple events is selected with the result shown graphically and on the single line diagram.
- The ERACS Universal Dynamic Modeller (UDM) allows AVR, Governor and controlled shunt models (DFIG's, PFC's, SVC's, saturable reactors etc) to be built and configured for use within Loadflow or Transient Stability studies.

ERA Technology Ltd

Since its foundation in 1920, ERA has evolved from its roots as a research association to become a centre of excellence in engineering technology with a strong brand and reputation, sitting at the forefront of specialist asset integrity service provision.

ERA is committed to delivering professional services to our customers across all business sectors, assisting them in reducing technical and commercial risk, improving the operational performance of their assets and developing and enhancing the competitiveness of their products and systems.

ERA Offers the Following Services:

AccessERA

(Publications, Training Courses, Newsletters & Information Services)

EMC and Radiocomms

(EM Management, Measurement and Modelling)

Engineering Consultancy Services

(Condition Assessment, Power Systems Analysis, ERACS Software, LV Electrical Product Testing, Failure Analysis and Materials & Design Consultancy)

Reliability and Failure Analysis

(Forensic, Analytical and Environmental Compliance Services)

System Safety Engineering and Assurance

(ISA, Safety Management Consultancy, Safety Process Audits, Software Assurance, Product Safety Assessments and Standards Compliance, RAM Engineering and Assurance).

For further information please contact:

ERA Technology Ltd

Cleeve Road,
Leatherhead,
Surrey KT22 7SA UK

Tel: +44 (0)1372 367350
Fax: +44 (0)1372 367359
Email: eracs@era.co.uk
Web: www.era.co.uk/eracs



FM 572 824