

TERMIS

**District Energy
Management System**





When energy is important

TERMIS from 7-Technologies is the leading district energy network management software. TERMIS is designed to improve performance while reducing energy loss, operating costs, customer complaints and capital investments. TERMIS is a most user-friendly, operational tool that will help you meet regulatory standards and business objectives.

With TERMIS you can create models of both simple and complex district energy systems. In other words, you can handle transmission lines as well as complex looped distribution networks. A model may include a multitude of plants, heat exchangers, pumps, valves and other equipment that affect pipeline operation and throughput.

TERMIS includes real-time optimization of system inlet temperature and pump operation, providing extremely rapid return of investment.



The TERMIS graphical user interface.

TERMIS – the district energy engineering tool

To optimize the design and operation of your district energy network, TERMIS is the perfect tool for running feasibility studies and scenarios to evaluate the effect of:

- New residential areas and industrial sites
- Increased demands
- Maintenance and rehabilitation jobs
- Fluctuations in consumption
- Installation of new equipment
- Changes in operation schemes

TERMIS is in daily operation in a large number of cities worldwide, helping more than 75 million people satisfy their heating and cooling needs.

With TERMIS, you can design the network to meet future demand or to comply with regulations while improving service. You avoid bottlenecks and optimize your investment. TERMIS includes a number of features and modules that enable you to save operating costs and capital investments.



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TERMIS Basis – for complete system overview

TERMIS Basis allows you to quickly evaluate the effect of changes to your district energy distribution system. TERMIS is used for design, hydraulic and thermal analyses, operational planning, and creation and analysis of alternative scenarios. TERMIS Basis helps you to determine maximum throughput, optimal inlet temperatures, optimal pipe sizing, and pump requirements for any given configuration. For existing pipeline systems, TERMIS Basis is used for capacity and operational analyses to minimize operating costs.



TERMIS is very user-friendly. Simulation results can be displayed in maps, tables, graphs and reports. A fast simulation engine in TERMIS ensures that engineers may quickly and accurately simulate large and complex energy distribution networks.



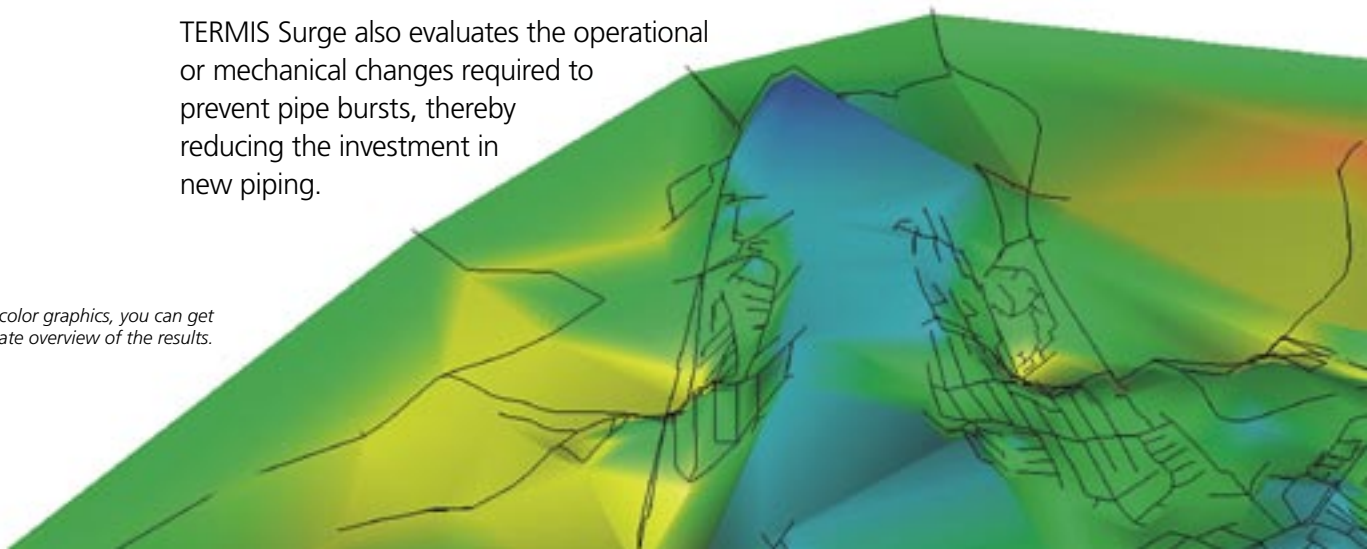
TERMIS Surge – protecting your piping

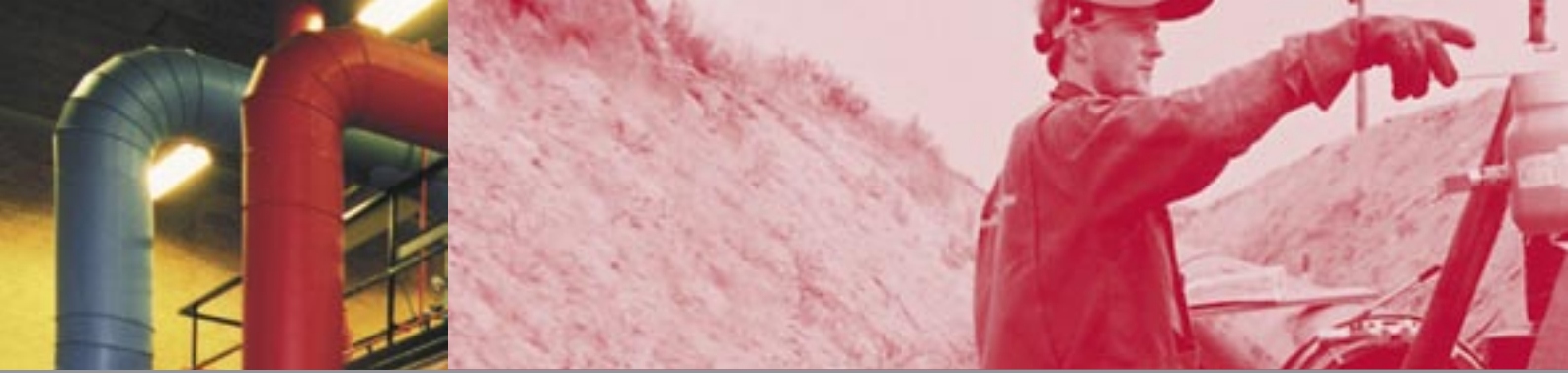
50% of all bursts in the distribution networks are caused by pressure surges. TERMIS Surge helps you to reduce the costs associated with these bursts. The program tracks pressure surges throughout the network and determines sizes and locations of pressure peaks for given scenarios. Stopping and starting of pumps, opening and closing of valves or large clients going online.

TERMIS Surge also evaluates the operational or mechanical changes required to prevent pipe bursts, thereby reducing the investment in new piping.

TERMIS is working in a geographical viewer as well as schematics suitable for SCADA.

With 3D color graphics, you can get the ultimate overview of the results.





Building a district energy

TERMIS Steam

The TERMIS Steam module allows you to perform simulations of pipeline networks carrying steam in the supply pipes and condensate in all return pipes.

TERMIS Model Manager

Building models is easy. You just need the following data:

- GIS/Mapping data
- Demand data/consumption profiles/geocoding of consumers
- Elevation data

With these data, Model Manager automatically generates your TERMIS model. What previously took man-months is now finalized within hours. Data are checked, and mistakes like double piping, wrong sizes and missing pipes are identified. Moreover, the model can be updated and maintained automatically in Model Manager, which saves you tedious upgrade work.

TERMIS Demand Manager

Correct information about energy consumption cooling or heating at the consumers in the network is the key to accurate simulations. Based on remotely metered consumption the TERMIS Demand Manager automatically calculates the best estimates of the parameters in the TERMIS cooling or heating model as well as energy consumption profiles for the individual consumer types within the network.

This ensures the most accurate consumption for the TERMIS simulations. Furthermore, tedious handling and analysis of large amounts of information in connection with real-time or historical simulations of district energy networks are reduced to a minimum.



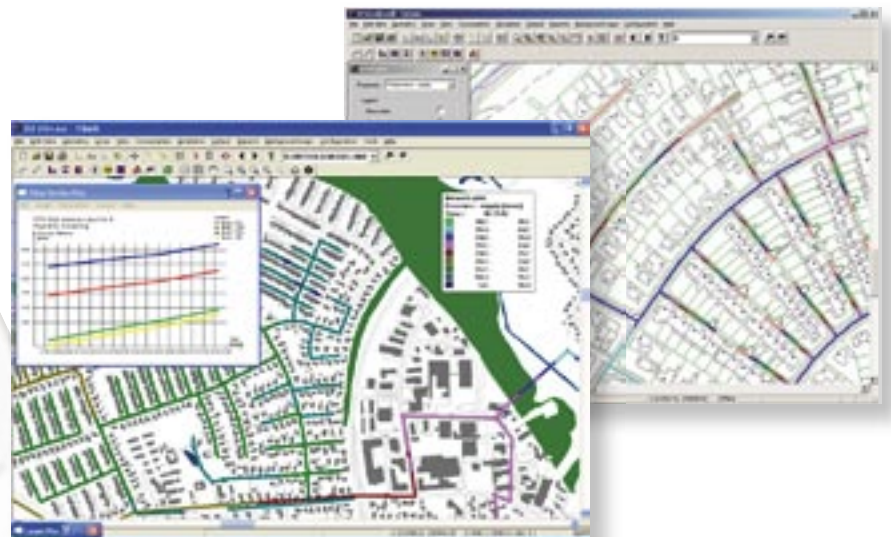
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TERMIS Calibration

In order to benefit the most from the simulations the models must be correctly calibrated. Model calibration has always been a manual and highly time-consuming process. With TERMIS Calibration these problems are history. The state estimation technique enables you to find the optimal calibration values for the model in only one calculation.

Using TERMIS Calibration you get the following applications:

- Hydraulic calibration
- Heat loss calibration
- Instrument verification



TERMIS Financial

TERMIS Financial is your professional program for conducting detailed financial analysis of planned development or rehabilitation of district energy networks – in an integrated process alongside with your TERMIS engineering analysis. This enables accurate evaluation of a planned development or rehabilitation as well as comparisons between alternative plans.



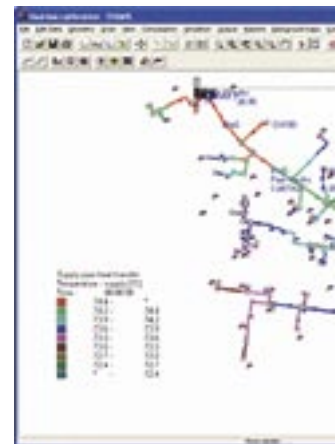
Real-Time simulation and

TERMIS Real-Time

With TERMIS Real-Time you can monitor the current flows, pressures and temperatures throughout the network as well as future states. Consequently, you can identify operational problems – even before they occur.

TERMIS Real-Time provides a complete network simulation based on the latest data from the actual process in the network. This means that you have access to the current state throughout the entire network - also where measurements are not available.

Furthermore, you will benefit from using the TERMIS Real-Time system when undertaking predictive simulations. The TERMIS Real-Time system can generate alarms for future violations of constraints in the network based on the latest measurements from the SCADA system. You achieve a broader understanding of the network performance and characteristics by using current data from the SCADA system as input for the TERMIS Real-Time simulation.



TERMIS Real-Time provides:

- Complete supervision and control of the network
- Early warning about future incidents
- Planning and design based on a model, which is continuously being updated and calibrated

TERMIS Temperature Optimization

TERMIS Temperature Optimization minimizes the heat loss within the network by automatically advising or adjusting the setpoints for the inlet temperatures, while at the same time ensuring that the consumer temperature meets the requirements. TERMIS Temperature Optimization takes into account the accumulated heat within the network and the changes in consumption. Experience shows that significant savings in excess of 2% of the heat production can be obtained by TERMIS Temperature Optimization.



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TERMIS Pump Optimization

This TERMIS feature helps you determine how the pumps within a district energy network should operate at any given time in order to minimize the total pumping costs for the entire network. TERMIS Pump Optimization combines knowledge of hydraulic constraints, outage of equipment, energy costs and heat supply to establish the most economic way of operation. Experience shows that TERMIS Pump Optimization may lead to savings of up to 20% of the pumping costs.

TERMIS Production Optimization

TERMIS Production Optimization determines how the producers within a district energy network should operate at any given time in order to minimize the total operating costs for the entire network. By combining knowledge about the heat producers within the network with hydraulic constraints and heat supply. TERMIS Production Optimization will establish the most economic way of network operation, leading to significant cost reductions.

The temperature module can be fully integrated with your SCADA system, thus providing significant enhancement of your SCADA functionality.

TERMIS Result Manager

TERMIS Result Manager provides you with outstanding capabilities for styling and broadcasting of TERMIS simulation results, to be made available for non-modeling specialists. A unique feature of TERMIS Result Manager is the ability to transfer the TERMIS simulation results into your GIS environment in the form of attributes to the GIS drawing objects. This makes simulated flows, pressures and temperatures available e.g. for service staff both in the office and in the field in a readily usable form.

TERMIS Result Manager comprises a database for TERMIS results – you can choose between SQLserver or Access, and advanced geographical presentation tools. TERMIS Result Manager can be applied to both TERMIS engineering simulation results and to TERMIS Real-Time results.

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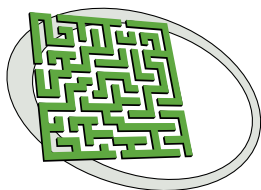
TERMIS Support from 7-Technologies

To ensure that our partners have immediate access if encountering a problem while implementing or running our software, 7-Technologies provides a support center manned with engineers, who have in-depth knowledge of our software. Additional support is available on our website, which also contains the answers to frequently asked questions.

7-Technologies

7-Technologies develops quality software for profitable operation of industrial plants and utilities. We build our business upon an alliance strategy whereby our software is sold through a network of global partners and system integrators.

For more information, please visit our website www.7t.dk.



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