

**COMPARISON of Solar Thermal Programs**

**10/2010**

	<b>T*SOL express 1.0 R3</b>	<b>T*SOL Pro 5.0 R1</b>	<b>T*SOL Expert 4.5 R5</b>
<b>Areas of Use</b>	Quick design program for solar thermal systems	Dynamic simulation program for the design and optimisation of solar thermal systems	Dynamic simulation program for the detailed investigation of solar thermal systems and components
<b>Target User Groups</b>	Trade technicians and sales staff	Engineers, planners, roofing technicians, and (electrical, building and solar) installers	Experts (research, scientific purposes, specialist planners, developers and consultants) who wish to investigate changes in the physical state of a solar system
<b>Main Purpose</b>	Quick design to determine the number of collectors and yield	Energy optimisation in solar thermal systems	Optimisation of components and systems, and system monitoring using real measurement data
<b>Languages</b>	English/German	English/French/German/Spanish/Italian  Project Report (summary report) is available in additional languages:  Bulgarian, Polish, Slovak, Slovenian, Czech, Hungarian, Romanian and Portuguese	English/French/German/Spanish/Italian  Project Report(summary report) is available in additional languages:  Polish, Slovak, Slovenian, Czech, Hungarian, Romanian and Portuguese
<b>Content</b>	Approximately 150 locations in Germany, about 800 European climate data records plus 275 worldwide data	Approximately 150 locations in Germany, about 2000 European and worldwide climate data records	Approximately 150 locations in Germany, about 800 European climate data records plus 275 worldwide data
	5 systems	A selection of over 60 different systems in the standard module	A selection of over 60 different systems in the standard module
		<b>New:</b> 5 systems with air collectors	
		More than 10 systems can be defined with 2 collector arrays	More than 10 systems can be defined with 2 collector arrays
	6 collector types	More than 1200 collector files	More than 1200 collector files

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		<p><b>New database format</b> for collectors and auxiliary heating with the possibility to define favourites and search, sort and filter options</p> <p>The user can edit the collector database, i.e. existing collectors can be edited or new collectors added</p>	The user can edit the various databases, i.e. collectors, storage tanks, external heat exchangers and boilers can be self-defined
		Primary energy database - user-defined fuels can be added	Primary energy database - user-defined fuels can be added
		<p><b>New:</b> Revised version of MeteoSyn with interactive map for selection of climate data</p> <p><b>Please note:</b> At the moment it is not possible to user-create climate data records from own radiation and temperature data</p>	Includes MeteoSyn, the climate data generator generates hourly data on the base of monthly data
<b>Additional Swimming Pool Module</b>		Additional Swimming Pool Module - with a further 38 systems	Additional Swimming Pool Module - with a further 38 systems
<b>Additional SysCat Module</b>		<p>Additional SysCat Module for large-scale systems:</p> <p>includes large solar buffer tanks, external heat exchangers and the use of anti-legionnaires' disease switching – with a further 14 system schematics</p>	<p>Additional SysCat Module for large-scale systems:</p> <p>includes large solar buffer tanks, external heat exchangers and the use of anti-legionnaires' disease switching – with a further 14 system schematics</p>
<b>Additional District Heating Module</b>			Additional Module for simulation of solar district heating systems – altogether 9 different variable systems
<b>Features</b>		Shade generator: detailed shade analysis with data entry	Shade generator: detailed shade analysis with data entry

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<b>Features</b>		The user can switch between SI and US units or add user-defined units	The user can switch between SI and US units or add user-defined units
			Parameter Variation: individual component parameters can be optimised for different modes of solar system operation, e.g. the combination tank's internal volumes
			Measurement data processing and data import of real measurement values for evaluation and comparison with simulation results such as: - Outside temperature - Global radiation onto the horizontal - Hot water consumption - Circulation losses - Space heating requirement
		system energy balance of the system is printed in the project report – all the energy flows are clearly shown	The system energy balance can be viewed in a Sankey diagram – all the energy flows are clearly shown in the diagram and can also be produced in table format
			Variant comparison in a table
			Project tree – for an overview of the most important parameters for each component
		<b>EnEV</b> assistant: standard calculations as per German energy savings regulation EnEV	
		Calculation of cold water temperatures from climate data record	

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<b>Results</b>	Yield calculation and collector area	Temperatures, energy values, efficiency and solar fraction	Temperatures, energy values, efficiency and solar fraction
	Simple project report; exportable (*.pdf or as E-Mail)	Summary six-page project report including energy balances or Detailed project report – both multilingual and exportable (*.pdf, *.rtf or as e-mail)	Summary six-page project report including energy balances or Detailed project report – both multilingual and exportable (*.pdf, *.rtf or as e-mail)
<b>Economic Efficiency Calculation</b>		Results include the cost of solar energy and the dynamic amortization period	Results include the cost of solar energy and the dynamic amortization period
<b>Service</b>		Set – Price Software Maintenance Agreement	Set – Price Software Maintenance Agreement