









Electrical Engineering Software

- DAPPER® Integrated Electrical Analysis Software. Comprehensive Three Phase Short-Circuit Studies, Load Flow Study, Demand Load Study, Feeder and Transformer Sizing Study, Impact Motor Starting Study, and Load Schedules. (Unbalanced Studies also available)
- CAPTOR® Time-Overcurrent Coordination. Graphical Time-Overcurrent Coordination. Integrated with one-lines, short-circuit modules, Equipment Evaluation, and Arc Flash. Comprehensive protective device library.



AUTO COORDINATION & EVALUATION Instantly identify coordination and protection issues by evaluating each equipment for adherence to the National Electric Code (NEC) and recommended industry standard practices. (Requires Dapper and Captor modules)

♠ ARC FLASH EVALUATION Calculates the incident energy and arc flash boundary for each bus in the system. Trip times are automatically determined from the protective device settings and arcing fault current values. Incident energy and arc flash boundaries are calculated based on accumulated fault values. Clothing requirements are specified from a user-defined clothing library. Clearing times can be reduced based on current-limiting capabilities. Complies with OSHA, NFPA 70E, NEC 110.16, and IEEE 1584 requirements. Generates custom labels and work permits. Also available as ArcCalc, a simplified stand-alone Arc Flash calculator.



CABLE AMPACITY Accurate calculation of ampacity and temperature rise in various power cable installations. Based on and fully compliant with IEC 60287.

- A_FAULT ANSI Short-Circuit Study. Three Phase Short-Circuit Study based on the ANSI/IEEE C37 Standards. Separate solutions for low, medium and high voltage systems and for symmetrical, momentary and interrupting calculations. (Unbalanced Studies also available)
- IEC_FAULT IEC Short-Circuit Study 909 or 363. Three Phase Short-Circuit Study based on the IEC 60909 or IEC 61363 Standards. (Unbalanced Studies also available)
- EQUIPMENT EVALUATION Equipment Evaluation Report. Automatically compares short-circuit ratings, withstand ratings. Applies de-rating adjustments and user defined pass/marginal/failed criteria. Includes error checking for input data and topology.



AUTO DESIGN Automatically sizes Cables, Transformers, Buses, and Protective Devices to achieve proper size and ratings that meets criteria limits set by the Equipment Evaluation study. Utilize user-defined Design libraries. Best suited for new system designs or to resolve undersized and/or overdutied equipment for existing systems. (Requires Equipment Evaluation module)

- ♦ **IEE WIRING REGULATION SIZING** Integrates the rules and data tables from the IEE Wiring Regulation to size cables based on the design loads of the power system. Automatically select the correct table from the IEE Wiring Regulation and pick the proper cable size.
- TMS Transient Motor Starting Simulation. Time-based motor starting simulation with graphical output. Includes reduced voltage and capacitor starting, graphical motor and load models.
- ♦ **HI_WAVE** *Harmonic Investigation and Filter Design.* Frequency Scan, Harmonic Current, Voltage Distortion, Harmonic Load Flow and Interactive Filter Design.
- I*SIM Dynamic Simulation and Transient Stability. Dynamic Response to Power System Electro-Mechanical Disturbances, Generator Sizing and Stability, Flux Level Machine Representation. User Defined Graphical Models for Exciter, Turbine Governor, PSS, and other controllers.
- UNBALANCED/SINGLE PHASE STUDIES

Load flow, short-circuit, demand load analysis, sizing, and load schedules. Reports single-phase loads and unbalanced operating conditions including phase and sequence currents and voltages.

- DISTRIBUTION RELIABILITY Reliability Analysis. Calculates the reliability indices of individual load points and the overall distribution systems with either radial or loop configuration. Includes Load Point MTTF, Failure/Year, MTTR, Annual Outage, EENS, ECOST, and other IEEE indices. Cost-related factors and aging factors are included in the analysis to compare alternative designs.
- ♦ **DC SYSTEMS ANALYSIS** Battery Sizing, Load Flow, & Short Circuit Analysis. Evaluate all loading conditions for DC duty cycle loads and AC emergency loads. Complies with IEEE std. 485, 1115, 399, 946, and IEC std. 61660. Includes DC Arc Flash when used together with Arc Flash Evaluation module.



PTW DATA COLLECTION Standalone program for engineers that desire to capture equipment data electronically while working in the field. Engineers may also use it to transfer hand written data into the software for more experienced engineers to review and conduct analysis on.

- PTW VIEWER Read-only version of PTW for displaying, printing, and exporting all study results. Create or expand one-lines and apply datablocks. View Time-Current Curves. View and create customized Arc Flash Labels and Work Permits.
- GROUND MAT Substation Ground Grid Design and Analysis. Optimizes grid design using general purpose finite element algorithm for potential analysis and graphical facilities to validate grounding systems efficiency.
- CABLE-3D Solves complex three-dimensional cable pulling tension and sidewall pressure calculations.



Data Exchange Import SPEL projects into SKM software to take advantage of a powerful calculation engine to conduct various complex analyses of electrical power systems. Interface to exchange data with Autodesk Revit now included at no additional cost!



New from SKM Systems Analysis, Inc.

Auto Coordination & Evaluation

SKM Auto Coordination & Evaluation module is designed to instantly identify coordination and protection issues by evaluating equipment for adherence to basic coordination and protection rules established by the National Electric Code (NEC) and recommended industry standard practices.

The software is designed to evaluate the entire system and identify violating equipment. Quickly view TCC plots to determine the cause of the miscoordination with a single click to efficiently make changes to improve coordination.

Auto Coordination & Evaluation is a powerful and time saving tool for power system evaluation and operation.

- · Comprehensive report all system components and their upstream/downstream protective devices.
- · Specific reports of a single equipment and their upstream/downstream protective devices.
- Evaluates and displays the status and evaluation notes with Pass/Fail/Warning status for each component.
- Displays violation details in accordance with National Electric Code (NEC) and recommended industry standard practices.
- · Dynamic TCC drawing displaying selected system component withstand/damage curves and protective device curves in the path upstream and downstream to the closest bus.
- Fix coordination issues and instantly see updated results.
- Integrated with Equipment Evaluation study module to view greater equipment details, load flow, and short circuit study results.

Cable Ampacity

SKM Cable Ampacity module is for accurate calculation of ampacity and temperature rise in various power cable installations, which is an important part of power system design and analysis. The calculation determines the proper cable sizes to carry specified loads in designing new systems and upgrading power cable installations.

The software examines cable temperatures and ampacity in performing analysis of existing systems. The accuracy of the calculation provides increased confidence in the design, upgrading, and analysis projects.

The software is an efficient tool for making complex calculation tasks straightforward and easy.

Benefits

- Calculate cable ampacity given its maximum conductor temperature.
- Calculate cable maximum conductor temperature given its ampacity.

Features

- Accurate calculation of cable ampacity and temperature rise in various power cable installations.
- · Based on and fully compliant with IEC 60287.
- Uses the Neher-McGrath approach where IEC 60287 does not apply (considers non-unity load factor)
- · Model cable physical characteristics.
- Over 500 prebuilt underground cable raceways, with ability to add user custom models.

Data Exchange

The Data Exchange Module provide an interface to seamlessly share project data between SKM projects and other third-party software. Exchange format includes Tab Delimited, CSV, and SKM XML. Also includes an interface to exchange data with Intergraph SmartPlant Electrical.



Interface to exchange data with Autodesk Revit now included at no additional cost!

Auto Design

Cut hours of design work! Automatically sizes Cables, Transformers, Buses, and Protective Devices to achieve proper size and ratings that meets criteria limits set by the Equipment Evaluation study. This software is best suited for new system designs or to resolve undersized and/or overdutied equipment for existing systems. Includes user-defined Design libraries to specify equipment that is often purchased.

Helps you design safer and more cost effective power systems for low, medium, and high voltage systems.

- · Works seamlessly with the Equipment Evaluation Module.
- · Saves you time by automatically entering equipment data for all components based on preset libraries with one click.
- Increases flexibility by auto designing based on equipment type or equipment manufacturer.
- Saves you time by generating a report that compares "As Found" information with "Auto Design" results.
- · Communicate designs more effectively with professional reports and annotated one-line diagrams.
- · Allows for consistent designs throughout the system.
- · Complies with NEC and other requirements.



Special PTW Combination Packages

SKM Systems Analysis is pleased to offer six PTW Software combination packages. The Combo-Packs offer the most requested PTW study modules used by over 50,000 engineers. No substitutions allowed on any packages. Packages are not available with any other discount. Existing software packages cannot be upgraded to any packages.

Additional study modules may be added to any package.

Combo-Pack I • DAPPER Equipment Evaluation • CAPTOR Arc Flash Evaluation • IEC 909 • A FAULT • IEC 363 **Buses** Price* 50 \$6,495 100 \$7,995 300 \$10,495 1000 \$13,495 2000 \$15,495 5000 \$19,495 12000 \$29,995

Co	ombo-Pack II	
 DAPPER Unbalanced Single Phase 		
• CAPTOR	• Equipment Evaluation	
• TMS	Arc Flash Evaluation	
Buses	Price*	
50	\$6,495	
100	\$7,995	
300	\$10,495	
1000	\$13,495	
2000	\$15,495	
5000	\$19,495	
12000	\$29,995	

NEW Aut	comation*Pack	
• DAPPER	Cable Ampacity	
• CAPTOR	 Auto Coordination 	
 Auto Design 	• Equipment Evaluation	
Buses	Price*	
50	\$7,495	
100	\$7,995	
300	\$10,495	
1000	\$13,495	
2000	\$15,495	
5000	\$19,495	
12000	\$29,995	

Power*Pack		
Arc Flash Evaluation		
Price*		
\$4,995		
\$6,995		
\$9,695		
\$11,695		
\$13,695		
\$18,695		
\$27,695		



Special PTW Combination Packages

SKM Systems Analysis is pleased to offer six PTW Software combination packages. The Combo-Packs offer the most requested PTW study modules used by over 50,000 engineers. No substitutions allowed on any packages. Packages are not available with any other discount. Existing software packages cannot be upgraded to any packages.

Additional study modules may be added to any package.

IEC Industria	l Pack
• DAPPER	
• CAPTOR	
Arc Flash Evaluation	
• IEC_909	
Buses	Price*
50	\$5,995
100	\$7,995
300	\$10,995
1000	\$13,495
2000	\$15,495
5000	\$19,495
12000	\$29,495

NEW

NEW IEC Mariti	me Pack	
• DAPPER	• HI_WAVE	
• CAPTOR	• IEC_363	
Arc Flash Evaluation		
• TMS		
Buses	Price*	
50	\$10,495	
100	\$12,495	
300	\$15,995	
1000	\$18,495	
2000	\$20,495	
5000	\$24,495	
12000	\$37,495	

• DAPPER	
• CAPTOR	
Arc Flash Evaluation	
• DC Systems Analysis	3
Buses	Price*
50	\$9,995
100	\$11,995
300	\$14,995
1000	\$16,995
2000	\$18,995
5000	\$23,995
12000	\$32,995

DC Systems Pack

^{*}Price includes one year of upgrades, software maintenance and support.



Combination & Upgrade Pricing Matrix

	PTW Program Modules with Add-On Options	PTW-LT 50 Buses	DAPPER 50 Buses	DAPPER 100 Buses	DAPPER 300 Buses	DAPPER 1000 Buses	DAPPER 2000 Buses	DAPPER 5000 Buses	DAPPER 12000 Buses	CAPTOR 1000 Buses
	BASE PRICE	\$3,395	\$1,995	\$3,795	\$4,795	\$6,995	\$8,995	\$13,995	\$19,995	\$4,395
	Maximum Components Per Project	150	unlimited	unlimited	unlimited	unlimited	unlimited	unlimited	unlimited	unlimited
	One-line Interface	included	included	included	included	included	included	included	included	included
1	DAPPER Study Modules*	Demand Load and Fault Analysis Only	included	included	included	included	included	included	included	See DAPPER
	CAPTOR Protective Coordination	included	\$2000	\$2000	\$2500	\$2500	\$2500	\$3000	\$4000	included
NE	Auto Coordination & Evaluation	\$2000	\$2000	\$2000	\$2500	\$2500	\$2500	\$3000	\$4000	\$2500
	Arc Flash Evaluation	\$2500	\$2500	\$2500	\$3000	\$3000	\$3000	\$3500	\$4500	Requires DAPPER
NE	Cable Ampacity	\$2000	\$2000	\$2000	\$2500	\$2500	\$2500	\$3000	\$4000	\$3000
	A_FAULT Fault Analysis ANSI C37	\$1000	\$1000	\$1000	\$1500	\$1500	\$1500	\$1500	\$2500	\$1500
	IEC_909 Fault Analysis	\$1000	\$1000	\$1000	\$1500	\$1500	\$1500	\$1500	\$2500	\$1500
	IEC_363 Fault Analysis	\$1000	\$1000	\$1000	\$1500	\$1500	\$1500	\$1500	\$2500	\$1500
	Equipment Evaluation	\$1000	\$1000	\$1000	\$1500	\$1500	\$1500	\$1500	\$2500	\$1500
NE	Auto Design	\$1000	\$1000	\$1000	\$1500	\$1500	\$1500	\$1500	\$2500	\$1500
	IEE Wiring Regulation Sizing	\$1000	\$1000	\$1000	\$1000	\$1000	\$1000	\$1000	\$2000	\$1000
	TMS Transient Motor Starting	\$2000	\$2000	\$2000	\$2000	\$2000	\$2000	\$2000	\$3000	\$2000
	HI_WAVE Harmonic Analysis	\$2500	\$2500	\$2500	\$3000	\$3000	\$3000	\$3000	\$4000	\$3000
	I*SIM Transient Stability	\$5000	\$5000	\$5000	\$5000	\$5000	\$5000	\$5000	\$6000	\$5000
	Unbalanced Three-Phase/Single-Phase	\$2000 Requires DAPPER	\$2000	\$2500	\$3000	\$3000	\$3000	\$3000	\$4000	Requires DAPPER
	Distribution Reliability	\$4000	\$4000	\$4000	\$4000	\$4000	\$4000	\$4000	\$5000	\$4000
	DC Systems Analysis	\$5000	\$5000	\$5000	\$5000	\$5000	\$5000	\$5000	\$6000	\$5000
NE	Data Exchange (Revit/XML/SPEL)	\$2000	\$2000	\$2000	\$2000	\$2000	\$2000	\$2000	\$3000	\$2000

*DAPPER Study Modules Include: Demand / Design Load Analysis, Feeder / Transformer Sizing, Panel, MCC, SWBD Schedules, Comprehensive Fault Analysis, LoadFlow / Voltage Drop, Impact Motor Starting

ADDITIONAL PROGRAMS:

NEW	PTW Data Collection (2000 Buses)	\$2500
NEW	PTW Data Collection (5000 Buses)	\$5000
NEW	PTW Data Collection (12000 Buses)	\$10000

PTW Viewer (2000 Buses)	\$995
PTW Viewer (5000 Buses)	\$1995
PTW Viewer (12000 Buses)	\$5995

Ground Mat	\$3995
Cable 3D	\$995



Software Support and Services

Service and Support

SKM's Technical Support Team is a quality-driven organization committed to helping you quickly resolve issues or questions within the software. Unlimited technical support and software updates are provided as part of the Maintenance and Support service. The first year is included as part of your purchase!

your purchase:		
Special Packages	List Price Per Year	Timely Renewal Price Per Year
Combo-Pack I	\$1970	\$1576
Combo-Pack II	\$1970	\$1576
Automation*Pack	\$1970	\$1576
Power*Pack	\$1495	\$1196
IEC Industrial Pack	\$1580	\$1264
IEC Maritime Pack	\$2190	\$1752
DC Systems Pack	\$1900	\$1520
PTW-LT	\$590	\$472
PTW Study Modules		
DAPPER	\$495	\$396
CAPTOR	\$495	\$396
Auto Coordination & Evaluation	\$340	\$272
Arc Flash Evaluation	\$395	\$316
Cable Ampacity	\$340	\$272
A_FAULT	\$235	\$188
IEC_FAULT 909	\$235	\$188
IEC_FAULT 363	\$235	\$188
Equipment Evaluation	\$235	\$188
Auto Design	\$235	\$188
IEE Wiring Regulation Sizing	\$195	\$156
TMS	\$345	\$276
HI_WAVE	\$285	\$228
I*SIM	\$565	\$452
Unbalanced/Single Phase	\$395	\$316
Distribution Reliability	\$395	\$316
DC Systems Analysis	\$565	\$452
Data Exchange (Revit/XML/SPEL)	\$265	\$212
Additional Baselines Users	\$295	\$236
Additional Simultaneous Users	30 to 50% discou	unt
	(based on quant	ity)
Additional Programs		

PTW Data Collection	\$500
PTW Viewer	\$445
Ground Mat	\$365
CABLE-3D	\$155
ArcCalc	\$155

Maintenance for software at higher buses will be additional

+2.5% @ 1000 buses. +5% @ 2000 buses.

+7% @ 5000 buses. +10% @ 12000 buses.

Late fees will be added for renewal of all expired licenses

Upgrades and Discounts

Upgrades

When upgrading from any product or combination to another product or combination, you will receive credit as long as the previously purchased software is current in Software Maintenance and Support Service.

Competitive Upgrades

Call about our competitive upgrade pricing.



1 Pearl Street Redondo Beach, CA 90277 USA 1 (800) 500-4SKM www.skm.com Systems Analysis, Inc. sales@skm.com

Network Options

Single User LAN Network License

Allows one user at a time, regardless of the number of program modules, on a single Local Area Network (LAN).

Price: Cost of program or combination package plus \$1500

Single User WAN Network License

Allows one user at a time, regardless of the number of program modules, on a Wide Area Network (WAN).

Price: Cost of program or combination package plus \$3000

Concurrent User Network License

Allows study modules to be accessed at the same time by multiple users Price: Upgrade to Network license first (see above), plus each additional study module at a 20% discount off full price. (20% discount not applicable to Combo-Packs or Power*Packs)

Corporate Licenses

Multi-Site Licenses

Please contact SKM for pricing at sales@skm.com.

Specifications

Recommended System Requirements

- PC running Windows 7 or newer
- 120 GB+ Solid State Hard Drive
- Intel i5 or i7 Processor
- 8GB+ of RAM

Dual monitors

What's Included in Your Order?

- Software program and applicable libraries
- Hardware key protection for each license
- Software Maintenance and Support Service, including technical support as needed; Maintenance is annually renewable in following years
- Major updates as released for one year
- User's Guides with step-by-step tutorials
- Tutorial Video DVD
- UPS Ground Shipping (Domestic USA); Expedited shipping available

Acceptable Forms of Payment

- Purchase Order (net 30 days) with approval
- Check
- Bank wire transfer
- MasterCard, VISA, or AMEX



Software Training

Classroom Training

Visit www.skm.com and click on Training to view scheduled training in your area.

On-Site Training

Training more than 5 engineers? We'll come to you! Email training@skm.com for a personalized on-site quote.

Mv SKM Customer Portal

With the My SKM Customer Portal, you'll be able to:

- Obtain pricing and order products and upgrades
- View license information
- View all invoices for your account
- Enroll in training
- Renew software maintenance
- View Transaction History, and much more!