etap
Thinking Power

# Panel Systems

## Panels - ANSI & IEC


# Power System Enterprise Solution

ETAP is the most comprehensive analysis platform for the design, simulation, operation, control, optimization, and automation of generation, transmission, distribution, and industrial power systems.

# Customize ETAP to fit your needs, from small to large power systems

ETAP Enterprise Suite provides one solution to your power system design, analysis, and operation needs. ETAP offers a comprehensive suite of analysis modules that can be configured to suit your specific needs. This modular approach allows you to purchase only the modules you need.

Featured in this brochure

**Cable Systems**
Cable Sizing - Phase
Cable Sizing - Grounding/PE
Cable Ampacity
Electric Shock Calculation
Underground Thermal Analysis
Cable Pulling

**Base Package**
Cable Ampacity & Sizing
Transmission Line Constants
Report Manager
Project Management Wizards
Output Report Comparator
Multi-Dimensional Database
Libraries

**Distribution**
Unbalanced Load Flow
Optimal Power Flow
Transformer Tap Optimization
Switching Sequence Mgmt.
Reliability Assessment
Optimal Capacitor Placement
GIS View

**Data Exchange**
DataX
MS Access® & Excel®
CAD Interface
e-DPP® Interface
SmartPlant® Interface
Third-Party Software

**Star Protective Devices**
Protection Coordination & Selectivity
Sequence-of-Operation
Relay Test Set Interface

**Transmission Line**
Line Constants
Line Ampacity
Mutual Coupling
Sag & Tension
HV DC Transmission Link

**Intelligent Load Shedding**
Adaptive Load Shedding
Automatic Islanding
Load Preservation & Management
System Restoration & Control
Load Shedding Validation

**Arc Flash**
AC Arc Flash
DC Arc Flash
Result Analyzer
Sequence Viewer

**Monitoring & Simulation**
Real-Time Monitoring
State Estimation
Energy Accounting
Predictive Simulation
Event Playback
Load Forecasting

**Ground Grid Systems**
Finite Element Method
IEEE 80 Method
IEEE 665 Method

**Dynamics & Transients**
Transient Stability
Generator Start-Up
Wind Turbine Generator
User-defined Dynamic Model
Parameter Estimation

**Network Analysis**
Short Circuit – ANSI
Short Circuit – IEC
Load Flow
Motor Acceleration

**Energy Management System**
Automatic Generation Control
Economic Dispatch
Supervisory Control
Interchange Scheduling
Reserve Management

**Panel Systems**
ANSI Panel
IEC Panel
Code Factors
Schedule Reports

**User-defined Dynamic Modeling**
Graphical Logic Editor
Transfer Function Blocks
Import/Export to Simulink®
Excitor/Governor/Stabalizer
Generic Load

**Renewable Energy**
Wind Turbine Generator
Wind Farm
Photovoltaic Array

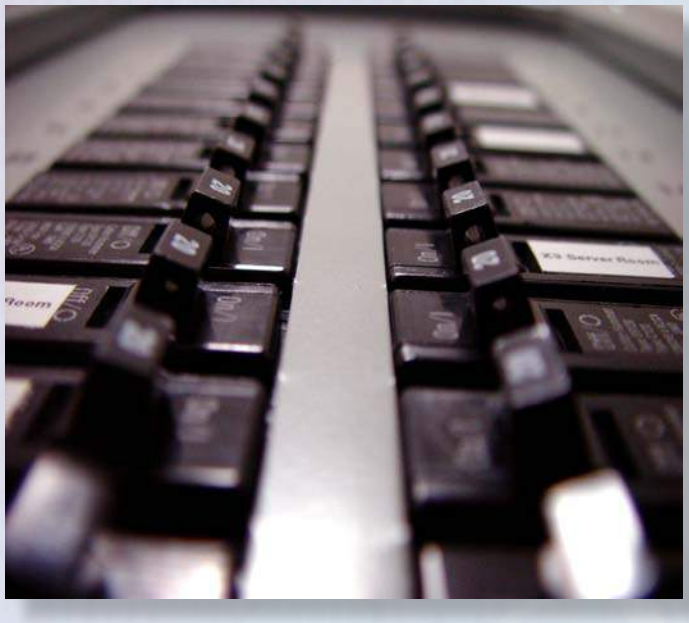
**Intelligent Substation**
Substation Automation
Switching Management
Load Management
Smart Grid
Micro Grid

**Power Quality**
Harmonic Load Flow
Frequency Scan
Harmonic Filters

**DC Systems**
Load Flow
Short-Circuit
Control System Diagram
Battery Discharge
Battery Sizing

# Panel Systems

## Ultimate Tool for Panel Systems Design and Analysis



Developed for electrical designers and engineers, the Panel Systems module combines a graphical user interface and the intelligence of ETAP to easily design and analyze low voltage distribution systems. Coupled with exclusive features and advanced capabilities, Panel Systems seamlessly integrates between different ETAP power system study modules such as Short Circuit and Load Flow.

**Panel Design & Analysis**

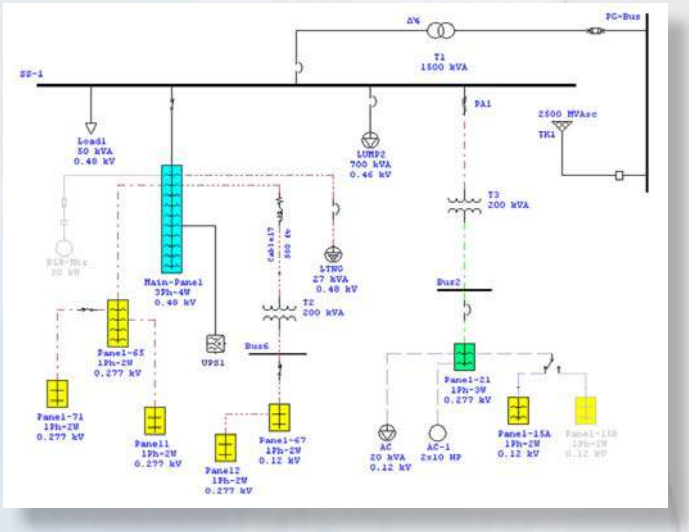
**3-Phase & 1-Phase**

**ANSI & IEC Standards**

**NEC® & User-Defined Load Factors**

**Intelligent Panel Calculations**

**Automatic Update of Upstream Panels**




**Detailed low voltage distribution**

# Intelligent Design with an Integrated Layout

## Capabilities

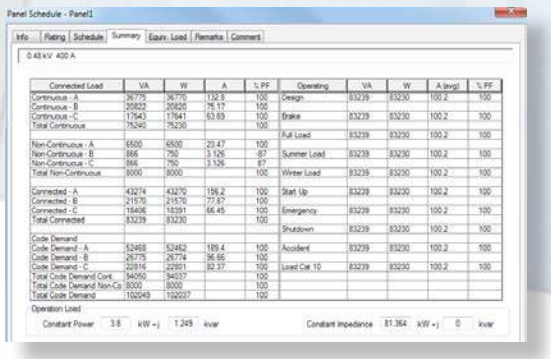
- NEC • ANSI • IEC Standards
- 3-Phase 3 Wire • 3-Phase 4 Wire
- 1-Phase 2 Wire • 1-Phase 3 Wire
- Column & standard layouts
- Unlimited branch circuits
- Unlimited sub-panel connections
- External network representation
- Internal (spreadsheet) load modeling
- Intelligent panel calculations
- Detailed panel loading summary
- Dynamic panel schedule updates
- Continuous & non-continuous load calculations

## Libraries

- Extensive protection & control device libraries
- Comprehensive feeder & cable libraries
- Customizable libraries
- User-configurable defaults & layouts

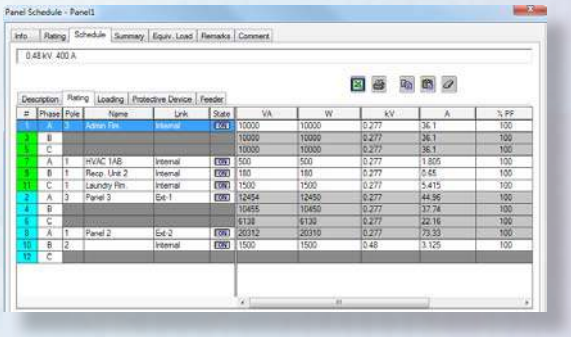
## Reporting

- Customizable panel schedules in Crystal Reports® format
- Comprehensive load summary for panel sizing
- Customizable reports for branch circuit evaluation
- Export one-line diagrams with results to third party CAD systems




## Flexible Operation

- Diverse operating conditions
- Multiple loading categories
- Multiple demand factors
- Unlimited configurations
- Different nameplate data
- Global & individual bus load diversity factors

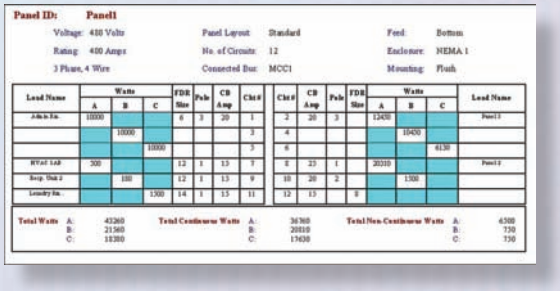



## Study Options

- Ten loading categories per circuit
- User-definable load types & factors

## Panel Code Factors

- NEC load demand factors
- Customizable multiplying factors



# etap.com

## Quality Assurance Commitment

ETAP is Verified and Validated (V&V) against field results, real system measurements, established programs, and hand calculations to ensure its technical accuracy. Each release of ETAP undergoes a complete V&V process using thousands of test cases for each and every calculation module. ETAP Quality Assurance program is specifically dedicated to meeting the requirements of:

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|---|---|---|---|
| ISO 9001:2009 | 10 CFR 21 | ASME NQA-1 | CAN/CSA-Q396.1.2 |
| 10 CFR 50 Appendix B | ANSI/ASME N45.2 | ANSI/IEEE 730.1 | ANSI N45.22 |



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