TRANSMISSION & INDUSTRIAL SYSTEM ANALYSIS

Power Cable Ampacity | Contingency Analysis | Short-Circuit | Motor Starting | Power Flow | And more...

CYMCAP, Power Cable Ampacity

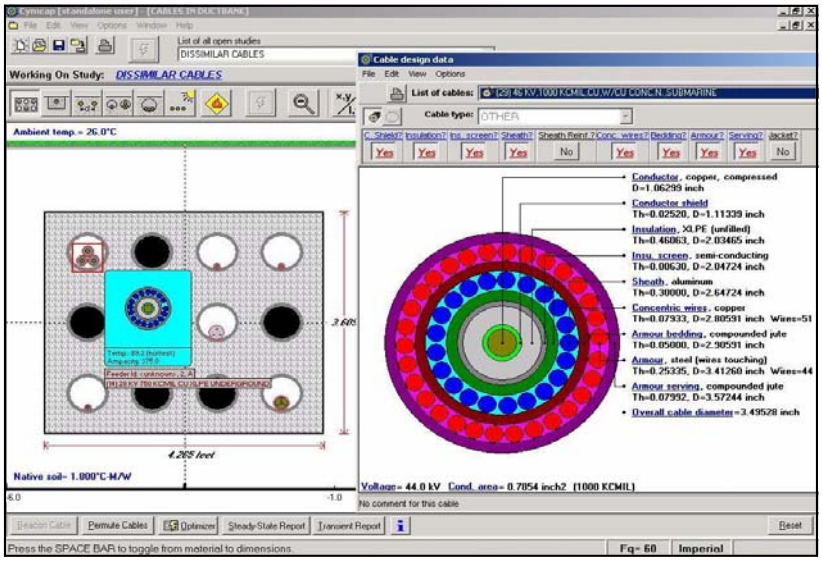
CYMCAP is designed to simulate the thermal behavior of power cable installations. The original version of this package was developed jointly by Ontario Hydro (Hydro One), McMaster University and CYME International, under the auspices of the Canadian Electricity Association.

Program Features

CYMCAP is dedicated to performing ampacity and temperature rise calculations for power cable installations.

Determining the maximum current power cables can sustain without deterioration of any of their electrical properties is important to the design of electrical installations.

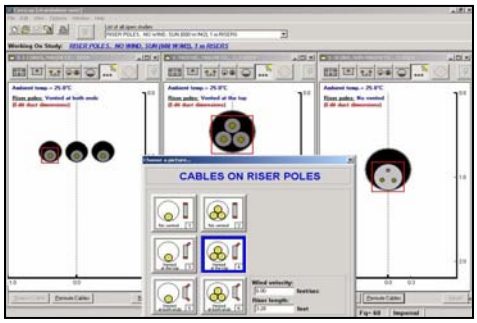
The field-tested accuracy of CYMCAP provides increased confidence when upgrading existing power cable installations and designing new ones, thus maximizing the benefits from the considerable capital investment associated with them.



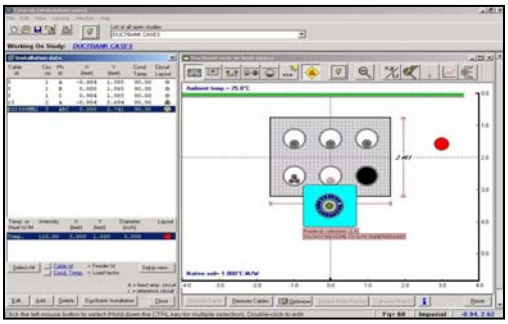
Analytical Capabilities

- Iterative techniques based on Neher-McGrath and IEC-287 methods.
- Full compliance with North American practice and support all pertinent IEC standards IEC 60287, IEC 60228, IEC 601042, IEC 60853, etc.
- A detailed graphical representation of virtually any type of power cable. This facility can be used to modify existing cables and enrich the cable library with new ones. This includes single-core, three-core, belted, pipe-type, submarine, sheathed, and armored cables.
- Different cable installation conditions such as directly buried, thermal backfill, underground ducts or duct banks.
- Cables in pipes with the pipe directly buried or in a thermal backfill.
- Independent libraries and data bases for cables, duct-banks, load curves, heat sources and installations.

- Simulation of cables in air on riser poles, groups of cables in air, moisture migration, nearby Heat sources and Heat sinks, etc.
- Different cable types within one installation.
- Non-isothermal earth surface modeling.
- Cyclic loading patterns as per IEC-60853, including soil dry out.
- Multiple cables per phase with proper modeling of the sheath mutual inductances which greatly influence circulating current losses and thus de-rating.
- All bonding arrangements for flat and triangular formations are supported with explicit modeling of minor section lengths, unequal cable spacing, etc.



Cables on Riser Poles

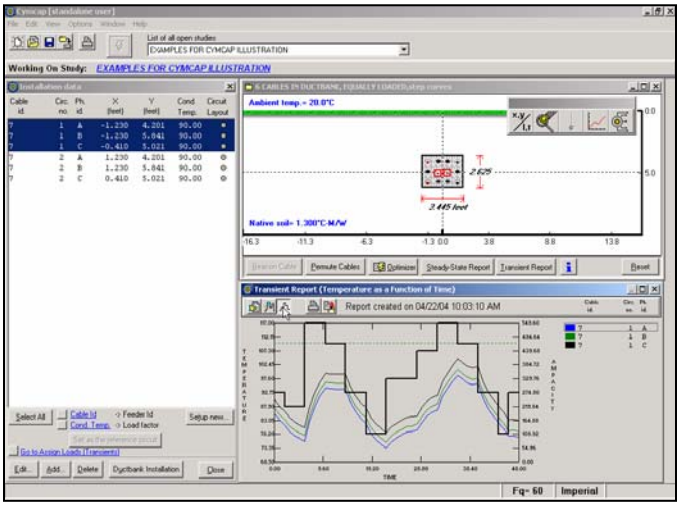


Heat Source Modeling

Transient Analysis

The program supports a Transient Thermal Analysis Option which includes the following:

- Ampacity given time and temperature.
- Temperature analysis given time and ampacity.
- Time to reach a given temperature, given the ampacity.
- Ampacity and temperature analysis as a function of time.
- User-defined load profiles per circuit.
- Multiple cables per installation.
- Circuits can be loaded simultaneously or one at a time.



Additional Modules

CYMCAP is a suite of applications that features the following additional modules:

- **CYMCAP/MDB** – Module designed for the modeling of multiple duct banks, multiple backfills and soil layers with different thermal resistivity.
- **CYMCAP/OPT** – Duct bank optimizer that computes the optimal location of the cables in a duct bank.
- **CYMCAP/SCR** (October 2005) – Short-circuit rating module that computes the maximum short circuit current or temperature for a given duration.

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