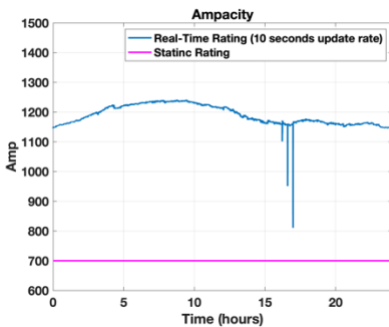


# LineID™ Beyond DLR

## GRAUNDBREAKING DLR WITHOUT WEATHER INFORMATION

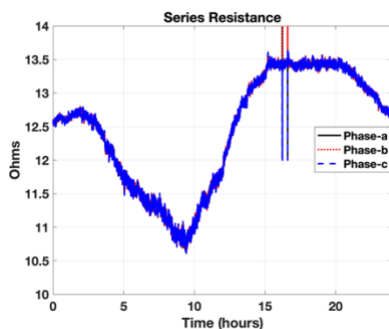
### Ampacity

LineID™ provides real-time ampacity of transmission lines without a need for weather information.



### Line Health Monitoring

LineID™ calculates parameters such as series resistance of conductors. Utilities can determine the health of the transmission lines by monitoring these parameters and can act quickly when anomalies are detected to prevent looming catastrophes, such as wildfires.

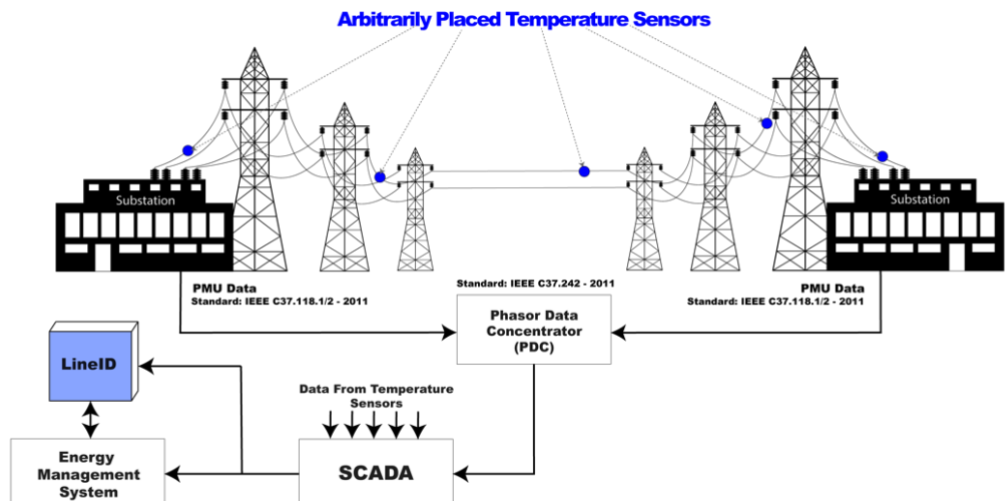


Providing utilities with real-time transmission line rating, ampacity, loadability and more ...

Topolonet introduces a groundbreaking approach in DLR with its proprietary technology, LineID™, which utilizes data from Phasor Measurement Units (PMUs) at both ends of the line without the need for additional sensor installations. LineID™ finds the rating of the line in real-time by calculating line parameters—such as series resistance, series inductance, shunt conductance, shunt capacitance, and surge impedance loading (SIL)—directly from PMU data in real time. LineID's innovative use of PMU data, independent of direct weather condition inputs like temperature, wind speed, or solar radiation, marks a significant leap forward in DLR technology, promoting a more responsive and efficient approach to electrical transmission network management without the reliance on conventional sensor-based monitoring. LineID™ can also estimate the stability limit (loadability) of transmission line in real-time providing utilities a very important characteristics of the line that is used to ensure the maximum capacity of the line is used while maintaining the stability.

## Critical Spans Detection

For long transmission lines, LineID™ can detect temperature variations in the conductors along the line and determine the critical spans of the transmission line in real-time by using just a few temperature sensors placed arbitrarily along the line.



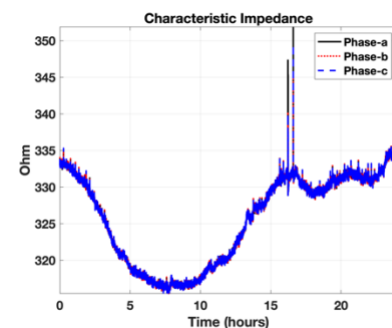
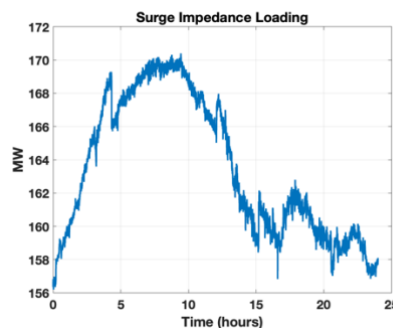
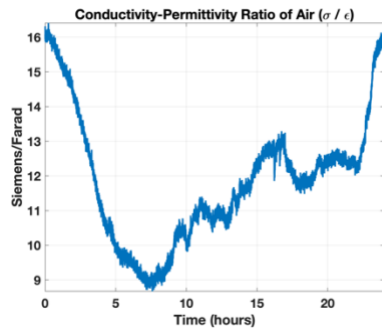
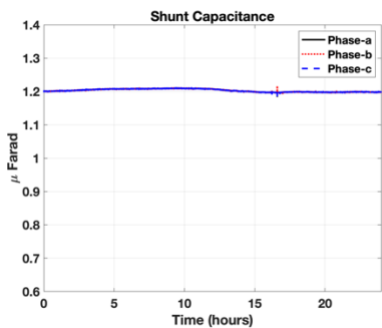
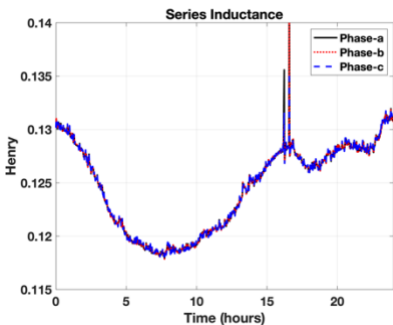
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# LineID™ Beyond DLR

## REAL-TIME TRANSMISSION LINE PARAMETER ESTIMATION WITH LINEID

LineID estimates the following transmission line parameters in real-time using PMU data, without relying on weather data or machine learning:

- Series resistance of each conductor
- Series inductance of each conductor
- Mutual inductances between conductors
- Shunt capacitances between conductors and ground
- Mutual capacitances between conductors
- CT/PT imbalance error
- Characteristic impedance matrix
- Surge impedance loading
- Loadability/Maximum power transfer
- Ampacity
- Voltage stability
- Conductivity of air around conductors
- Temperature variation along the transmission line
- Locations of critical spans



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