

SMARTLINE® Transmission Line Rating Platform

The SMARTLINE platform consists of cloud-based software and line mounted sensors which work together to develop real-time dynamic line ratings and highly accurate forecasts of transmission line power carrying capacity. The system ensures ratings and capacity forecasts are in compliance with electrical clearance limits and avoid conductor thermal overloads. Forecasts can be provided in one-hour to one-week increments with 98% or better confidence. SMARTLINE is ideal for engineering, operations, and planning functions. The system can be easily integrated with EMS systems in both day-ahead and real-time markets.

SMARTLINE SYSTEM OVERVIEW

MEASURE • RATE • FORECAST • MONITOR

The SMARTLINE Platform provides real time line ratings, forecast line capacity, and meaningful measurements of conductor behavior.

Four elements of the SMARTLINE System provide seamless line monitoring, DLR and transmission capacity forecasting solutions.

COMPONENTS OF THE SMARTLINE SYSTEM:

- **MEASURE:** Lindsey TLM® Transmission Line Monitors provide the real-time conductor behavior information required by the SMARTLINE software systems.
- **RATE:** The SMARTLINE-DLR™ Software engine uses active learning techniques to develop a conductor behavior model that provides real-time dynamic line ratings (DLR) for each monitored transmission line.
- **FORECAST:** The SMARTLINE-TCF™ Software engine develops forecast line ratings for use in emergency situations, day-ahead markets, and other short- to medium-horizon operations.
- **MONITOR:** The optional conductor asset monitoring module for SMARTLINE provides real-time indication of conductor life by tracking loss of strength.



Transmission line congestion associated with renewable energy can often be relieved or eliminated through the application of DLR.

SMARTLINE® provides both detailed graphical information showing line information, forecasts, and weather parameters, and simple numeric only ratings for use on EMS screens. Any data may also be imported directly to EMS with ease. All data collected by the conductor monitors and real-time or forecasted weather data may be viewed graphically or exported for off-line analysis.

EMS Operator Screen:

Numeric display of critical data



Detailed Forecast Display:

RATE:
SMARTLINE-DLR™

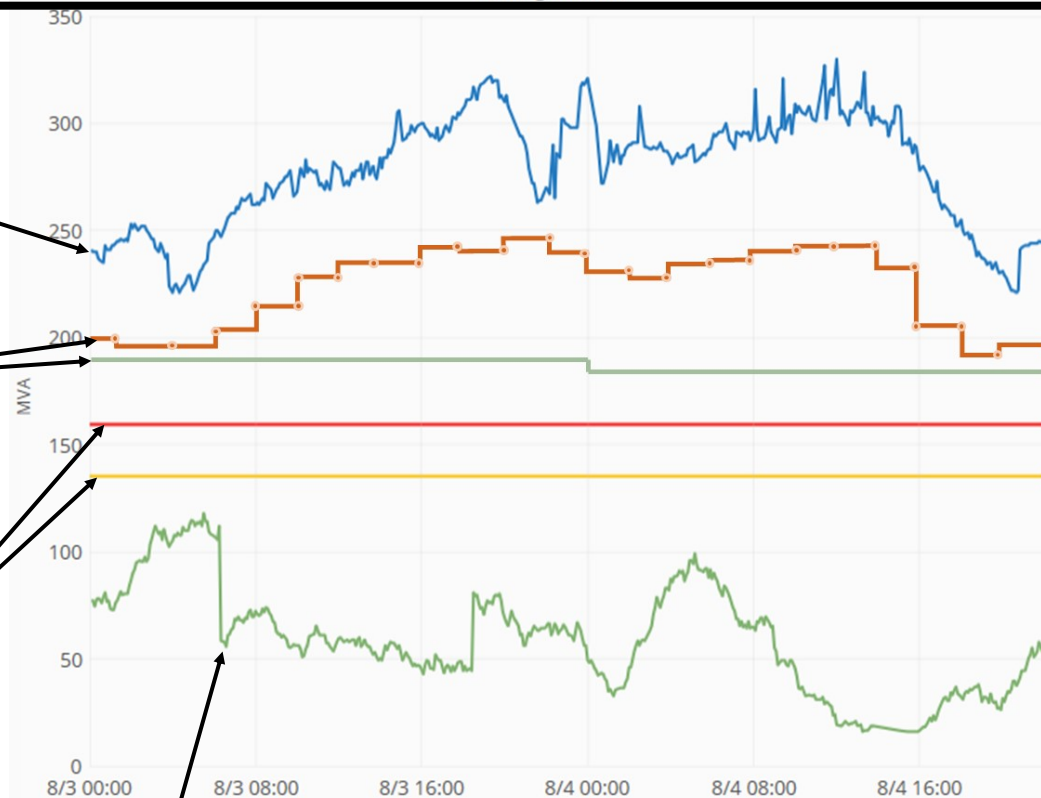
The shape of this curve is representative of the rapidly fluctuating nature of dynamic line ratings.

FORECAST:
SMARTLINE-TCF™

Patented algorithms indicate the line may be operated at the forecast level with a 98% confidence factor. Two-hour (orange) and 24-hour (green) forecasts as indicated.

Utility Provided:

2-Hour Emergency (red) and Static Line (gold) ratings provide a familiar frame of reference. Users can specify this type of custom information to be added during system set-up.



MEASURE:

Data from TLM® Monitor

Display of the actual power being carried by the line.
Other displays (not shown) show additional measured data.

For more information:

[Download full version of brochure](#)

[Visit our website](#)

Lindsey Manufacturing Co., dba Lindsey Systems
760 N. Georgia Avenue | Azusa, CA 91702 USA
Tel. +1-626-969-3471 | www.lindsey-usa.com

©2020 Lindsey Systems, Lindsey, SMARTLINE, SMARTLINE-DLR, SMARTLINE-TCF, and TLM are trademarks or registered trademarks of Lindsey Manufacturing Co.
Iridium is a trademark of Iridium Communications Inc.
U.S. Patents 7,786,894 | 8,738,318 | 10,855,107 and other U.S. and foreign patents pending.

Publication Number 11F-007 SMARTLINE-TCF • December 2020

LINDSEY
SYSTEMS