

Line IQ

Data Sheet

LineIQ provides basic line fault indication, as well as intelligent remote monitoring. Basic fault indicators point only to the initial (primary) faults; however, intelligent monitoring helps utilities more quickly isolate faults and restore power through recording real-time data on true voltage*, fault waveform, load profile, line status and condition, ambient and conductor temperature, and through providing time-stamped event recordings.

LineIQ Comprises:

Overhead conductor mounted Sensors plus a Communications Gateway accommodating:

- Low powered, license free RF between LineIQ sensors and the Communications Gateway
- Real time transmission of event data to a control room or to trouble men from the Gateway, commonly via cellular network (GSM, CDMA) or via satellite or radio using DNP3, Internet access, etc.



LineIQ Provides Data For:

System Operators:

RMS Load Current: Accuracy 2% of reading, +/- 1A, up to 85 days

Voltage Status: On or off, levels up to 138kV, 45 to 65Hz

Event Capture: Voltage and Current for 60 sec, sample rate, Current 1200Hz, Voltage 600Hz, up to 100+ events

Fault current: RMS up to 25kA, wave form for 240mS encapsulating the fault, up to 32+ waveforms

Time Voltage Off: Time of voltage return and outage duration

Fault Location: a) Simple on/off indicating lights and fault magnitude for single faults
b) Changes in fault current magnitude and timing of change for secondary faults,

Power Factor: On each phase

Load Balance: Over 3 phases

Conductor Temperature: Up to +257 °F (+125°C), accuracy +/- 1°F, for dangerous sag or overload

Maintenance Personnel:

Temporary Faults: Spasmodic current increases insufficient to trigger protection but indicative of imminent permanent faults (e.g., from tree interference or cracked insulators, etc.)

Recloser Operation: Spasmodic without lockout, indicating a more imminent, permanent fault situation

Protection Engineers:

Protection Timing: Timing in relation to levels of fault current and wave shape

Design Engineers: Measurements to compare performance against design criteria (e.g., line loading, power factor, load balance, etc.)

Regulator Reporters:

Power Time Off: To compile and report statistical performance data such as SAIDI, CAIDI and SAIFI indices against regulatory standards

LineIQ Technical Specifications:

Line Voltage	<138kV Phase-to-Phase	Measured Parameters	Current and Power (On/Off)
Frequency	45-65Hz	Fault/Event Capture	60-Sec RMS profile (I & E-Field)
Conductor Range	Up to 1.3" (32mm)		Pre-event line loading
Visual Indication	High-intensity red and amber LEDs		Fault current magnitude up to 25KA
Fault indication	Red LED every 10 seconds		Fault current waveform (240mS)
Line status	Amber LED every 30 seconds		E-field waveform % change (240mS)
Fault indication reset	Time-based and/or line-restoration reset	Power outage	Time of power-off
Communications	Wireless local and remote options	Power restoration	Time of Power-On and Outage Period
Local RF	Low-powered license-free range 100 ft (30m)	Profiling	User-defined ave. profile (1-60 mins) of load
Remote	Cell (GSM/CDMA), landline		V50-60 Conductor & ambient temp. up to +257 °F (+125°C)
Protocols	DNP3, Web services	Sample Rate	Current 1200Hz, E-field 600Hz
System integration	SCADA & historian integration tools available	Accuracy	Current ±1% of reading ±2 A, Temp ±1 DegF
Energy Storage/Power Source	Solar powered with battery backup (approx. 12 days)	Memory Storage Capacity	Rolling partitioned memory
Housing material	UV stabilized polycarbonate and/or aluminum diecast	RMS records (60sec)	100+ events
Ingress protection	IP66	Fault waveforms	32+
Weight	4.6 lbs (2.2kg)	Load Profiling	Up to 85 days

*Requires external sensor