

POWER QUALITY • LV NETWORK

NF31

Network fault monitor

The NF31 is an IP67-rated continuous fault monitor and analyser for low-voltage fault detection and high-frequency event capture.

It provides four current-monitoring channels, capturing synchronised waveforms @ 4 MHz on voltage & 1 MHz on current with GNSS timing accuracy down to 1 µs.

Suitable for both permanent and temporary deployments, it supports advanced power quality reporting, high-frequency EMI analysis, and distributed event correlation.

It helps detect unsafe conditions early, including arcing, partial discharge, degraded supply quality, and failure precursors.



4 MHz ANALOG SAMPLING



Load
Profiling & fingerprinting



Quality
IEEE & IEC reporting



Faults
Anomaly & event alerts

FEATURES

- Measures three-phase and neutral current using Rogowski coil sensors.
- Captures high-speed synchronised waveforms with GNSS timing accuracy down to 1 µs.
- Supports standards-compliant power quality, energy, and event reporting.
- Estimates supply impedance to monitor connection integrity and detect degradation.
- Performs high-frequency EMI and wavelet analysis to detect arcing, vegetation contact, and partial discharge events.

BENEFITS

- Suitable for permanent installations and temporary field deployments.
- Correlates waveform events across multiple monitors and network locations.
- Supports standardised power quality reporting and event analysis.
- Provides early warning of unsafe operating conditions and degraded supply quality.
- Helps identify fault precursors early, improving network safety and reliability.

0.1%

VOLTAGE ACCURACY

IP67

INGRESS

1 µs

GNSS TIMING

20 yr

RETENTION



TECHNICAL SPECIFICATION

NF31 Network fault monitor

GENERAL	
Fault Analysis	Real-time anomaly detection with instant event alerts.
	GNSS-synchronised timestamps with microsecond accuracy.
Fault Analysis	RaptorVision™ waveform capture with adaptive sampling from 2 kHz to 4 MHz.
	Event-driven 4 MHz wavelet analysis for high-frequency fault detection.
PHYSICAL WIRING	
Enclosure	Polycarbonate
Ingress	IP67
Protection Class	II
Dimensions	221 mm x 145 mm x 55 mm
PERFORMANCE SPECIFICATION	
Voltage Accuracy	0.1 %
Current Accuracy	0.5 %
Freq. Accuracy	45-65 Hz, 0.1%
Operating	-25 °C to +60 °C
Storage	-40 °C to +70 °C
Rel. Humidity	75 % mean
Consumption	3 W peak
Real-time Clock	< 5 s/mth, NTP server or GNSS sync
Rogowski Coil	10—500 mV/kA
Supply Voltage	110—480 V AC
Time Accuracy	<5 s/month (unsynchronised)
Sync Method	NTP server when connected
Battery Backup	10 years at 23 °C, unpowered

REPORTING	
Revenue	HHR & TOU (in HERM, EIEP3 formats) Active & Reactive, Inject & Extract
Power Quality	IEEE 1159.3 (PQDIF) IEC 61000-4-3 (10min-24hr interval)
Load Current	Sampled at 10 sec
ANALOG SAMPLING FREQUENCY	
Revenue	20 kHz per circuit
Power Quality	200 kHz per circuit
Fault Analysis	4 MHz voltage & 1MHz current (4+4+4) + (1+1+1) (16 MHz total)
POWER QUALITY METRICS	
Harmonics	Harmonics, Sub-harmonics and Inter-harmonics from 5 Hz to 10 kHz
Waveform Capture	20 kHz for 10-cycles + GNSS 200 kHz for 1-cycle + GNSS
Conductive Emissions	Voltage & Current across three bands: 2-10 kHz, 10-150 kHz, 150-900 kHz
Wavelet Analysis	4 MHz in 250 µs interval from 2 MHz to 15 kHz
DATA MEMORY	
Power & Events	512 MB storage
Retention	20 years
Encryption	256-bit AES
COMMUNICATION	
Standard	Cellular LTE CAT-M1 NB-IoT (eSIM)
Option	NR+ (mesh)
STANDARDS & COMPLIANCE	
AS/NZS	61439.1:2016 10.9, 10.9.2, 10.9.3, 10.9.4, 11.9

ORDERING OPTIONS

 NF31 3 phases, 1 feeder circuit	 NF32 3 phases, 2 feeder circuits	 NF33 3 phases, 3 feeder circuits
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