VariPhi

SENSORS · APIs · DATABASE · PREDICTIVE AI

Feel every asset.
Before it fails.

Variphi connects sensors, APIs, and databases to build a live telemetry layer across your gensets, solar assets, pumps, and motors — then uses predictive AI to surface failures weeks before they happen.

PRODUCT **Asset Telemetry Platform**

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THE PROBLEM

Your assets generate data.

But nobody is listening until something breaks.

Gensets run on fixed service schedules. Solar inverters degrade silently. Pumps cavitate for weeks before anyone notices. Variphi bridges the gap — continuous telemetry, real-time anomaly detection, and failure prediction that gives you weeks of lead time.

82%

of failures are unpredictable

3–10x

Cost of reactive vs. planned repair

< 5%

of sensor data is actually used

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WHAT WE MONITOR

Every critical asset. One telemetry layer.

01

Gensets & DG Sets

Engine temp, oil pressure, vibration, fuel level, load %, run hours, coolant, exhaust.

02

Solar Plants

Irradiance, panel temp, string current/voltage, inverter efficiency, PR, grid export.

03

Motors & Drives

Vibration, bearing temp, current draw, phase imbalance, winding resistance, speed.

04

Pumps

Flow rate, inlet/outlet pressure, acoustic cavitation, vibration, seal leakage.

05

HVAC & Chillers

Refrigerant pressure, coil temp, airflow, COP, energy consumption, filter status.

06

Transformers

Oil temp, DGA, load %, bushing current, partial discharge, tap changer position.

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HOW IT WORKS

Sensors. APIs. Database. AI.

A four-layer pipeline — from the sensor on your genset to the alert on your phone.

SENSE

Sensors & Edge

Vibration, thermal, current, acoustic, pressure, oil quality sensors wired or wireless. Edge gateways aggregate and forward.

- Modbus RTU/TCP
- 4-20mA · 0-10V
- BLE · LoRa · Wi-Fi

CONNECT

APIs & Protocols

Standard industrial protocols ingested into a unified data bus. SCADA, PLCs, and cloud APIs all normalized.

- MQTT · OPC-UA
- REST · gRPC
- SCADA · BACnet

STORE

Time-Series DB

High-frequency telemetry stored in a purpose-built time-series database. Asset registry, event log, and model store alongside.

- InfluxDB / TimescaleDB
- Asset metadata graph
- Retention policies

PREDICT

AI & Alerts

Anomaly detection, remaining useful life prediction, failure classification, and trend forecasting. Alerts push to your CMMS, email, or phone.

- ML anomaly models
- RUL prediction
- CMMS · SMS · Email

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DATA ARCHITECTURE

From sensor to insight — one unified pipeline.

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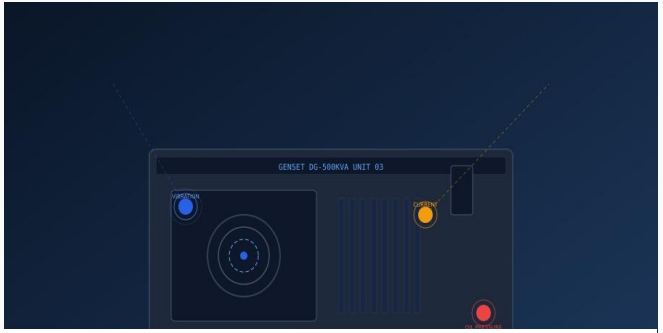
ASSET FOCUS · GENSET MONITORING

Know your genset. Inside out.

Continuous monitoring of engine health, oil quality, load patterns, and fuel consumption. Predictive models flag bearing wear, injector degradation, and coolant system drift weeks ahead.



01 Vibration analysis

Bearing health, shaft alignment, mechanical looseness. Trend + FFT + envelope.

02 Oil quality tracking

Viscosity, TAN, water content, particle count via inline or periodic sampling.

03 Thermal profiling

Exhaust temp per cylinder, coolant in/out, ambient delta. Overheat prediction.

04 Load & fuel analytics

Real-time kW, kVA, PF, fuel rate, run hours. Efficiency trending and fuel theft detection.

SENSORS Vibration · Thermal · Current · Oil · Pressure · Fuel

PROTOCOLS Modbus RTU · 4-20mA · MQTT

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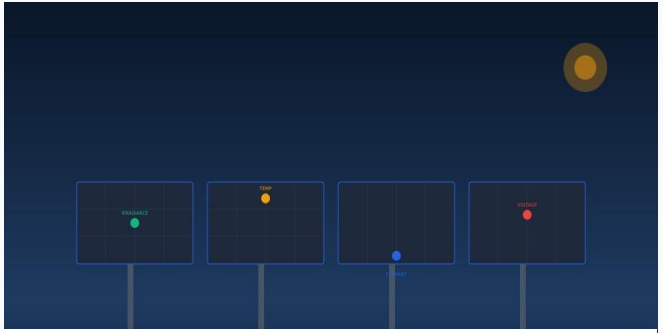
ASSET FOCUS · SOLAR PLANT MONITORING

See every watt your plant should

Panel-level current/voltage, inverter efficiency, performance ratio, and degradation curves. AI detects hotspots, string failures, soiling losses, and inverter IGBT drift before generation drops.



01 String-level IV curves

Current and voltage per string. Detect mismatch, bypass diode failure, shading loss.

02 Inverter health

IGBT temperature, DC bus voltage, conversion efficiency. Predict capacitor aging.

03 Performance ratio

Actual vs. expected generation. Weather-normalised PR, soiling index, degradation rate.

04 Grid export analytics

Real-time export kWh, reactive power, voltage/frequency compliance, curtailment alerts.

SENSORS Irradiance · Temp · Current · Voltage · Weather

PROTOCOLS Modbus TCP · SunSpec · REST API

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PREDICTIVE MAINTENANCE

Know what will fail. And when.

- Remaining Useful Life (RUL) per asset
- Anomaly detection with auto-baseline
- Failure classification by root cause
- Trend forecasting with confidence bands
- Maintenance window recommendation
- CMMS work-order auto-creation

40%
less unplanned downtime

3–10x
savings vs. reactive repair

21 days
avg. advance warning

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DASHBOARD

Your entire fleet. One screen.

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WHY VARIPHI

The platform advantage.

Protocol-agnostic ingestion

Modbus, OPC-UA, MQTT, REST, BACnet, SCADA — we speak every sensor language.

Edge-first, cloud-optional

Data stays on your network. Models run at the edge for real-time response. Cloud dashboard optional.

Asset-type AI models

Pre-trained models for gensets, solar, pumps, motors. Custom models for your specific failure modes.

One platform, many assets

Gensets, solar, HVAC, pumps, transformers — unified telemetry and alerting across your entire fleet.

CMMS & SCADA integration

Alerts push directly to SAP PM, Maximo, or your existing CMMS. SCADA back-write for control loops.

Deployed in 4 weeks

Sensor install, gateway config, dashboard live, first prediction — typically under 30 days per site.

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NEXT STEP

Instrument one asset.

Pick one genset, one inverter, or one pump. We install sensors, connect the data, and deliver your first predictive alert within 30 days. Then you decide.

REQUEST A DEMO
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MORE
https://variphi.com

Schedule a 30-Day Road Pilot