# Reliability X 360

Predictive decision support for critical assets

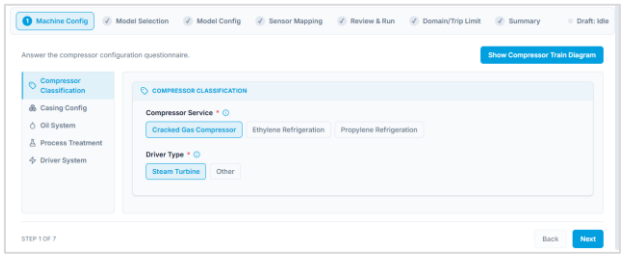
MODULE OF THE INGENEROX360 AI SUITE

## PRODUCT OVERVIEW

ReliabilityX360 is a decision-support application for critical plant assets. The current problem isn't lack of alerts — it's alerts that fire too late to prevent a trip, or too often to trust. ReliabilityX360 combines domain and ML agents configured on the asset's own build with its historian and DCS tag data, so one framework covers a complete asset without a custom model rebuild for each — catching what's developing early enough to act on and specific enough to trust. Output reaches the reliability engineer as a named failure mode, an estimated time-to-failure and a prescribed action, reported against the parameter that caused it.

## 01 Asset Configuration

*Shown: the guided compressor build, then the train diagram it generates.*



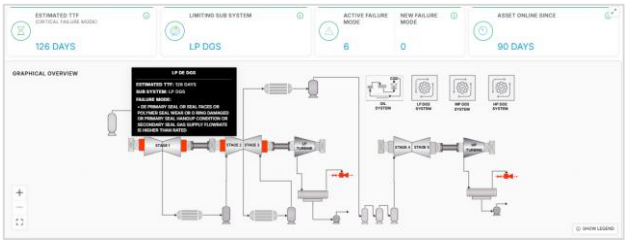


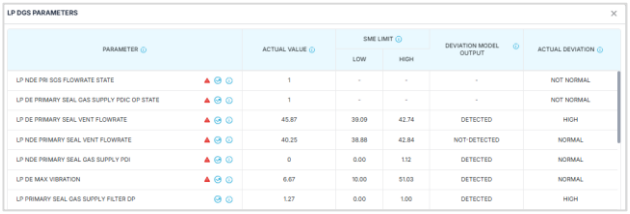


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|---|---|
| **Asset build** | *compressor service, driver type, casing count and stage grouping* |
| **Sub-systems** | *dry gas seals, mechanical, oil system, turbine, condenser, process stages* |
| **Sensor mapping** | *available tags mapped against a predefined list — adapts automatically* |
| **Model depth** | *deviation detection, failure mode identification, failure prediction* |

## 02 Plant Data and Model Execution

*Shown: the machine as a live schematic, and parameter behavior*



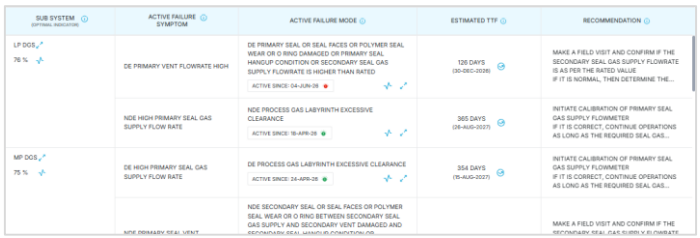

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|---|---|
| **Inputs** | *Sensor tag entry, OEM/rated/design data, configuration details* |
| **Processing** | *tag validation, failure mode matrix build and scoring, failure prediction* |
| **Outputs** | *active failure mode, parameter forecast, estimated TTF, prescription, alerts* |

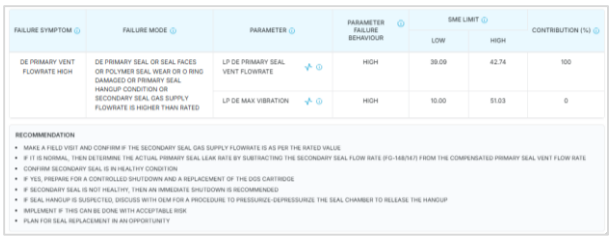
## 03 AI-Powered Model Agent Suite

*Model selection is shared across assets — each model's behavior is tuned to the asset's own failure modes*

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|---|---|
| **Smart Feature Engineering** | *Inferred tags engineered per asset from asset specific domain knowledge* |
| **Tacit Knowledge, Encoded** | *Engineers' tacit knowledge built directly into every model and limit* |
| **Deviation from Design** | *Tracks how equipment behavior drifts from design and rated conditions* |
| **Early Deviation Detection** | *Deep learning models learns normal behavior and catches deviations early* |
| **Failure Mode Matrix** | *One setup run builds the failure symptom, mode and parameter matrix* |
| **Failure Mode Identification** | *Correlates parameters against domain logic to name the failure mode* |
| **Time-to-Failure Estimation** | *Estimates time to failure before a parameter crosses a threshold* |
| **Parameter Contribution** | *Ranks each parameter's contribution to the active failure mode* |
| **Sub-System Health Ranking** | *Scores every sub-system and names the one limiting the asset* |
| **Workflow Suggestions** | *Prescribed action per mode, routed to the engineer for closeout* |

## 04 Opportunity and Operator Actions




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| **30+ days** | **Advance warning** on every alert, before failure | **$2M+/yr** | **Savings potential** per critical asset protected | **<2%** | **False alert rate** alerts an engineer can act on |

**Basis:** avoided unplanned trips, controlled versus forced shutdown, lead time and false alert rate measured verified against actual site data

## 05 Platform

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|---|---|---|---|---|
| **Historian connectivity** plug and play with leading plant historians | **API Integration** enriches models with CMMS/EAM history | **Daily reporting** downloadable daily reports with interactive trends | **Gen AI assistant** answers plant questions in the operating workflow | **Build your own dashboard** engineers assemble the views their reliability team needs |

**DELIVERY**
Configured, validated and commissioned by Ingenero reliability engineers.

**FLEXIBILITY**
Any asset build; selectable model depth; selectable sensor set

**SCALE**
Repeat assets and sites reuse the configuration, with no/minimal rework.

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