

ThermalDIAG Analytics - User Manual

Date: 2026-08-13

1. Purpose of This Manual

This manual describes how to use ThermalDIAG Analytics. The application is used for historical evaluation of ThermalDIAG data, trend review, local rule preparation and safe backtesting of rule variants.

ThermalDIAG Analytics is not a replacement for the running ThermalDIAG runtime. It works as a separate analysis workstation. During analysis and simulation, no real outputs are switched, no real Modbus commands are executed, no e-mails are sent and no snapshots are captured.

The manual is intended for users who investigate incidents, understand historical states or prepare rule ideas.

2. Basic Principles

2.1 Analysis Instead of Runtime

ThermalDIAG Analytics reads existing ThermalDIAG data and calculates local analysis results. The running plant is not controlled.

2.2 Local Rule Variants

Rule changes in the Analytics workspace are local at first. They do not overwrite an original ThermalDIAG rule.

2.3 Backtest as Simulation

A backtest shows how a selected rule variant would have reacted to existing historical data. It does not prove how the plant was configured in the past.

2.4 Trend as Decision Support

A trend view is a calculated continuation of a selected curve. It is not a guaranteed forecast and does not replace professional judgement.

2.5 Deliberate Handover

A checked rule idea can be handed over to ThermalDIAG. This creates a new disabled rule. Release for operation happens later in ThermalDIAG.

3. Typical Users

Maintenance and Operation

Investigate incidents, compare time ranges and prepare next actions.

Operators

Check why an event occurred and use the analysis as a basis for feedback or ticket handling.

Technicians and Commissioning Users

Compare measurements, digital states and rule behaviour during troubleshooting, pilot phase or optimisation.

Process and Test Engineers

Review recurring patterns, trends, test sequences and possible rule variants.

Administrators and Integrators

Set up connection, project context and publishing access, and support safe rule handover.

4. Connection and Basic Settings

4.1 Establish Connection

Open ThermalDIAG Analytics and configure the connection to the released ThermalDIAG data source or service endpoint defined for the project.

Check:

- base address or data source;
- user permission;
- selected project;
- available time range;
- language and unit settings.

4.2 Select Project

Select the project that belongs to the plant area or incident under review. Project selection determines which measurements, signals, incidents and rules are available.

4.3 Choose Time Range

Choose a time range that covers the relevant state. For incident analysis, include time before and after the event. For trend analysis, choose a longer period with enough representative data.

5. Timeline and Measurements

5.1 Timeline View

The timeline is the main view for analysis. It can show thermal values, analog measurements, digital states, incidents and available markers together.

Use the timeline to answer:

- what happened first;
- how long a state was active;
- which measurements changed together;
- whether a digital state explains a thermal change;
- whether the selected time range is complete enough.

5.2 Measurement Details

Measurement details help compare selected values more closely. Use them to inspect peaks, slow changes, missing data and value ranges.

5.3 Digital States

Digital states can explain whether a machine was enabled, a relay was active, a door contact changed or a feedback signal was missing.

5.4 Incidents and Markers

Incident markers help navigate to relevant moments. Available action markers can show when a simulated or historical action context is important for the analysis.

6. Trend View

Trend view can calculate and display a continuation of selected values.

Use it for:

- slow temperature increase;
- gradual analog value change;
- comparison of similar periods;
- technical discussion about whether a state is moving in the wrong direction.

Do not use trend view as a guaranteed forecast. Always consider plant changes, data gaps, measurement quality and process knowledge.

7. Local Rule Workspace

7.1 Create or Copy a Rule Variant

Create a new local rule or copy an existing rule into the Analytics workspace. The original rule remains unchanged.

7.2 Adjust Rule Parameters

Depending on the rule type, adjust:

- threshold;
- hold time;
- hysteresis;
- filters;
- selected measurement;
- digital conditions;
- relevant time range.

7.3 Document the Reason

Write down why the rule variant exists. A useful note explains which problem the rule should detect and which historical situation was used for review.

8. Backtest

8.1 Run Backtest

Select the local rule variant and the historical time range, then run the backtest.

The result shows how the rule would have reacted to the selected data.

8.2 Interpret Results

Check:

- number of triggers;
- trigger timing;
- missed relevant states;
- unwanted triggers in normal operation;
- effect of hold time and filters;
- whether data quality is sufficient.

8.3 Compare Rule Variants

Compare several rule variants when needed. Do not optimise only for one event; also test normal periods so that the rule does not become too sensitive.

9. Safe Rule Publishing

When a rule variant appears useful, it can be handed over to ThermalDIAG.

Important:

- the handover creates a new disabled rule;
- the productive original rule is not overwritten;
- the new rule must be reviewed in ThermalDIAG;
- operational release must be deliberate;
- physical actions and outputs require project-specific approval.

10. Common Problems

Missing Data

If curves or states are missing, check selected project, time range, source connection and whether the data was recorded in ThermalDIAG.

Too Many Backtest Triggers

The rule may be too sensitive, the threshold may be too low or hold time and filters may be missing.

No Backtest Triggers

The selected time range may not contain the event, the measurement may be wrong or the rule condition may be too strict.

Trend Looks Misleading

Trend output can be affected by short peaks, data gaps, changed operating states or too short a selected period.

11. Safety Summary

ThermalDIAG Analytics supports analysis and rule preparation. It does not control the plant and does not replace professional review. Rule handover is only preparation; operational release belongs in ThermalDIAG and must follow the agreed project process.