

6. Analysis

User manual

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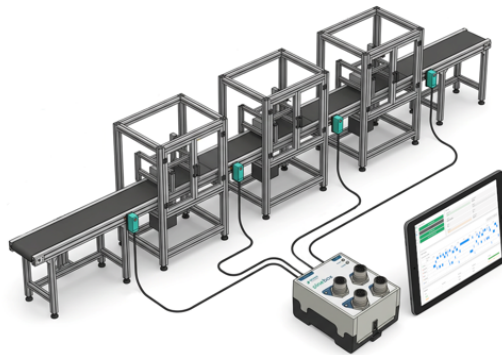


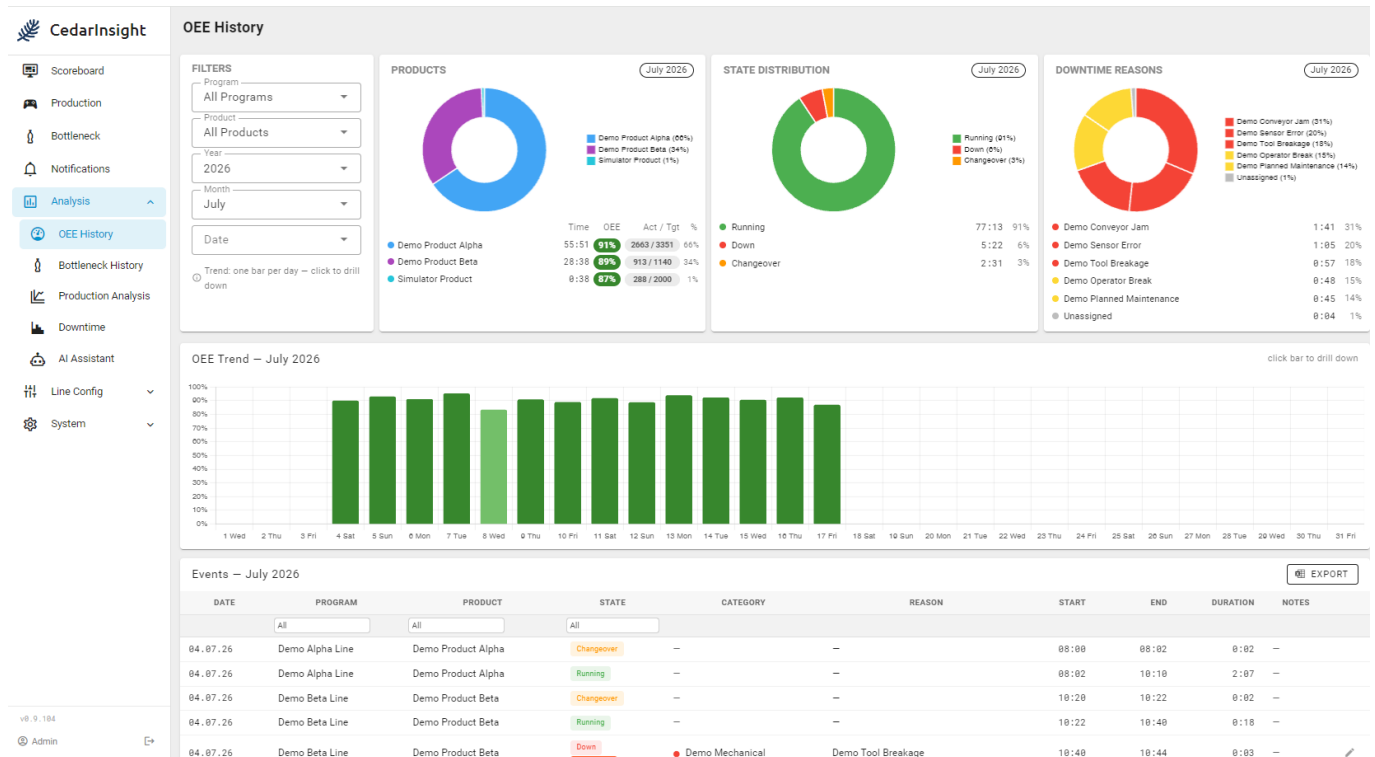
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6. Analysis

The Analysis views are available to **Supervisor** and **Admin** roles. All views share the same filter pattern: **Program**, **Product** and a time drill-down (year → month → day).

6.1 OEE History



Analysis → *OEE History* shows the OEE development over time.

- **KPI cards:** OEE per product, states, downtime reasons for the selected period.
- **OEE Trend:** one bar per year, month or day; click a bar to drill down to the next level. At day level, an **Hourly OEE** table shows OEE, actual/target and events per hour; click a row to filter the pies and event list.
- **Events:** the downtime events of the selection, with duration, planned/unplanned flag, category, reason and notes.

Editing downtime reasons: in the events list you can **assign** a reason to a pending event or **edit** an already assigned one (pencil icon): select category, reason and optional notes. This is the place to clean up unclassified stops after the shift.

6.2 Bottleneck History

CedarInsight

- Scoreboard
- Production
- Bottleneck
- Notifications
- Analysis**
- OEE History
- Bottleneck History**
- Production Analysis
- Downtime
- AI Assistant
- Line Config
- System

Bottleneck History
DEMO-A

FILTERS

Program
Demo Alpha Line

Product
ALL

Year

Month

Date

Trend: yearly – click bar to drill down

PRODUCTS

All time

Demo Product Alpha 4:09 2663 / 3351 100%

TIME SHARE

All time

Bottleneck 4:09 7%
No Bottleneck 51:41 93%

BOTTLENECK STAGES

All time

Infeed 2:17 55%
Assembly 1:52 45%

Bottleneck Rate

click bar to drill down

93%

2026

Bottleneck Events 31						EXPORT
Date	Product	Stage	Throughput/h	Start	End	Duration
	All	All				
2026-07-04	Demo Product Alpha	Infeed	32/h	06:27	06:32	5:00
2026-07-04	Demo Product Alpha	Infeed	43/h	10:58	11:03	5:00
2026-07-04	Demo Product Alpha	Assembly	43/h	11:33	11:38	5:00
2026-07-05	Demo Product Alpha	Infeed	44/h	06:08	06:13	5:00
2026-07-05	Demo Product Alpha	Assembly	30/h	06:34	06:39	5:00
2026-07-05	Demo Product Alpha	Infeed	27/h	11:01	11:06	5:00
2026-07-05	Demo Product Alpha	Assembly	22/h	11:24	11:29	5:00

Analysis → *Bottleneck History* aggregates the bottleneck events ([chapter 5.3](#)) across runs.

1. Select a **Program** (mandatory as stages/stations are program-specific).
2. The trend chart shows bottleneck time per year/month/day; click a bar to drill down or, at day level, to filter the event list.
3. The **Bottleneck Events** table lists each event with date, product, stage, throughput/h, start, end and duration.

Use this view to find the chronically limiting stage of a line: the prime candidate for improvement measures.

6.3 Production Analysis

Scoreboard

Production

Bottleneck

Notifications

Analysis

OEE History

Bottleneck History

Production Analysis

Downtime

AI Assistant

Line Config

System

Production Analysis

FILTERS

Program

All Programs

Product

All Products

Year

2026

Month

July

Date

Runs: July 2026 – select date to narrow

PRODUCTION RUNS

#	DATE	START	END	PROGRAM	PRODUCT	DURATION	UNITS	DEFECTS	QUALITY %	OEE %	STATUS
46	2026-07-17 00:00:00	21:04	21:24	Simulator Line	Simulator Product	0:19	121 / 500	10	91.7%	83.2%	COMPLETED
45	2026-07-17 00:00:00	20:57	20:59	Simulator Line	Simulator Product	0:01	11 / 500	3	72.7%	1.6%	COMPLETED
44	2026-07-17 00:00:00	15:40	15:57	Simulator Line	Simulator Product	0:16	124 / 500	7	94.3%	23.4%	COMPLETED
43	2026-07-17 00:00:00	15:38	15:39	Simulator Line	Simulator Product	0:01	32 / 500	27	15.6%	1.0%	COMPLETED
42	2026-07-17 10:20:00	12:28	14:03	Demo Alpha Line	Demo Product Alpha	1:43	83 / 103	0	100.0%	80.7%	COMPLETED
41	2026-07-17 07:54:00	09:54	11:56	Demo Beta Line	Demo Product Beta	2:02	59 / 81	2	96.7%	70.6%	COMPLETED
40	2026-07-17 06:00:00	08:00	09:35	Demo Alpha Line	Demo Product Alpha	1:35	76 / 95	4	95.7%	76.7%	COMPLETED
39	2026-07-16 10:45:00	12:45	14:30	Demo Alpha Line	Demo Product Alpha	1:45	87 / 105	6	93.6%	78.0%	COMPLETED
38	2026-07-16 08:31:00	10:31	12:32	Demo Beta Line	Demo Product Beta	2:01	64 / 80	2	98.1%	78.6%	COMPLETED

OEE

70.6%

AVAILABILITY

86.1%

PERFORMANCE

84.9%

QUALITY

96.7%

UNITS OUT

59 / 81

DURATION

2:02

PRODUCT

Demo Product Beta

DELETE RUN

EXPORT

STAGES (UPH):

Feed (INPUT)

QC Out (OUTPUT)

SENSORS

Demo Temperature (°C)

TAKT:

Demo Takt Sensor (s)

OPTIONS:

Min/Max

Alarm

Throughput & Sensor Trend

2026-07-17 07:34:00

Running

Running Slow

Changeover

Down

Planned Stop

Draining

Stopped

Feed

QC Out

Demo Temperature (°C)

Demo Takt Sensor (s)

The chart displays four data series over a 24-hour period from 08:04 to 11:54. The left Y-axis represents UPH (Units Per Hour) from 0 to 60. The right Y-axis represents Demo Takt Sensor (s) from 55 to 105. The Feed (green solid line) and QC Out (blue solid line) series fluctuate between 30 and 50 UPH. The Demo Temperature (°C) (red solid line) fluctuates between 60 and 80. The Demo Takt Sensor (s) (green dashed line) fluctuates between 70 and 100. The chart also includes a legend for various states: Running (green circle), Running Slow (orange circle), Changeover (red circle), Down (red square), Planned Stop (yellow circle), Draining (blue circle), and Stopped (grey circle). The chart is titled 'Throughput & Sensor Trend' and includes a date/time selector '2026-07-17 07:34:00'.

v0.9.184

Admin

Analysis → Production examines individual production runs.

The graph data shows data for a production run: throughput of the single stations and the takt and sensor data connected with the program. The takt and sensor data is used to correlate events and data with the throughput, e.g. throughput goes down when temperature goes up.

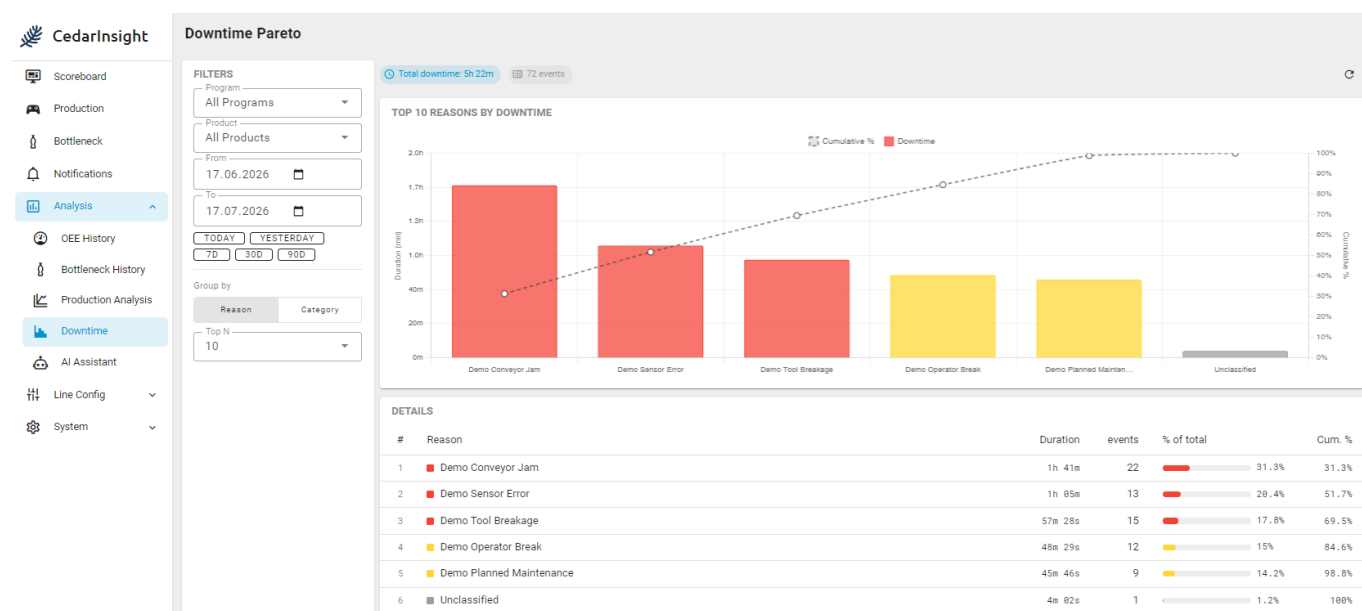
To analyze production runs, the following actions are available:

- Narrow the run list by year, month, date, program and product. The **Production Runs** table shows date, start/end, program, product, duration, units, defects, Quality % and OEE % per run, plus its status.
- Click a run to load its detail below:
 - **Production Summary**: the run's OEE figures,
 - **Throughput & Sensor Trend**: a time chart of the run. Select which **stages** (throughput) and **sensors** to plot; options include min/max bands and alarm markers, and a **takt** overlay. Scroll to zoom, drag to pan (on the timeline)

Run maintenance (use with care):

- **Close Run**: marks a still-ACTIVE run as COMPLETED and recalculates its OEE metrics. Use this when a run was left open (e.g. after a power failure).
- **Delete Run**: permanently deletes the run and all associated data. This cannot be undone.

6.4 Downtime Pareto



Analysis → Downtime ranks downtime causes by total duration, the classic Pareto (“80 % of downtime comes from 20 % of causes”).

- Filters: date range, program, product.
- **Group by** *Category* or *Reason*; select **Top N**.
- The chart shows duration bars plus the **cumulative %** line; the header shows total downtime and number of events.
- The **Details** table lists rank, name, duration, number of events, % of total and cumulative %.

6.5 AI Assistant

AI Analysis

FILTERS

Program: All Programs

Product: All Products

From: 17.06.2026

To: 17.07.2026

TODAY YESTERDAY

7D 30D 90D

All 43 run(s) in range

PRODUCTION RUNS

#	DATE	START	PROGRAM	PRODUCT	DURATION	UNITS	OEE %	STATUS
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45	2026-07-17 08:00:00	2026-07-17T18:57:57Z	Simulator Line	Simulator Product	0:01	11 / 500	1.6%	COMPLETED
44	2026-07-17 08:00:00	2026-07-17T13:40:39Z	Simulator Line	Simulator Product	0:16	124 / 500	23.4%	COMPLETED
43	2026-07-17 08:00:00	2026-07-17T13:38:21Z	Simulator Line	Simulator Product	0:01	32 / 500	1.0%	COMPLETED

CHAT <https://deep1.pinetek-networks.com>

What are our biggest downtime reasons?

AI Analysis - 2026-06-17 → 2026-07-17

The biggest downtime reasons in the last 30 days are unplanned stops, with Demo Conveyor Jam as the top contributor.

Reason	Category	Type	Frequency	Duration (min)	Share (%)
Demo Conveyor Jam	Demo Mechanical	Unplanned	22	101.1	31.3
Demo Sensor Error	Demo Mechanical	Unplanned	13	65.9	20.4
Demo Tool Breakage	Demo Mechanical	Unplanned	15	57.5	17.8

[Downtime](#)

Ask a question, e.g. Which product is most stable?

EXAMPLE QUESTIONS

- > Which product has the most stable process?
- > What are our biggest downtime reasons?
- > Do our failures correlate with sensor anomalies?
- > Which takt measurement has the longest cycle times?

AVAILABLE DATA

- OEE (A × P × Q)
- Downtime & stop reasons
- Hourly OEE trend
- Bottleneck stages
- Throughput per stage
- Live production status
- Process sensors (program-specific)
- Takt times – external measurement (program-specific)
- Sensor → throughput correlation (LLM-analysed)

Data stays on Pinebox - Mistral AI (EU)

Analysis → **AI Assistant** provides chat-based analysis of your production data: ask questions in natural language (“Which product had the worst quality last?”, “What were the main downtime causes?”) and receive answers computed from the database.

6.5.1 Working with the assistant

- Define the dataset first: date range, program, product, or a set of selected runs. The assistant answers only from this scope.
- The assistant uses the same aggregation logic as the analysis views and reports, so its figures match what you see elsewhere.



The AI (LLM) is weak handling date and time inputs like “today” or “last week”. To narrow down times, please use the filters. They will filter the raw data provided to the API.

6.5.2 Licensing, data privacy and anonymisation



- The AI Assistant is a licensed feature (entitlement *AI Chat*, [chapter 9.6](#)). Without it the view shows “AI Analysis not licensed”.
- Requests are processed via the Pinetek LLM gateway. Identifying names are anonymised before leaving the device and de-anonymised in the response; the external model never sees your real product or program names.

6.6 Exporting data

Analysis tables offer an **Export** action that downloads the current (filtered) data as an Excel file for further processing.