dejoule
INTELLIGENCE MEETS IMPACT

Inside Aurolab:

Eliminating 60 hours of monthly downtime

with DeJoule.

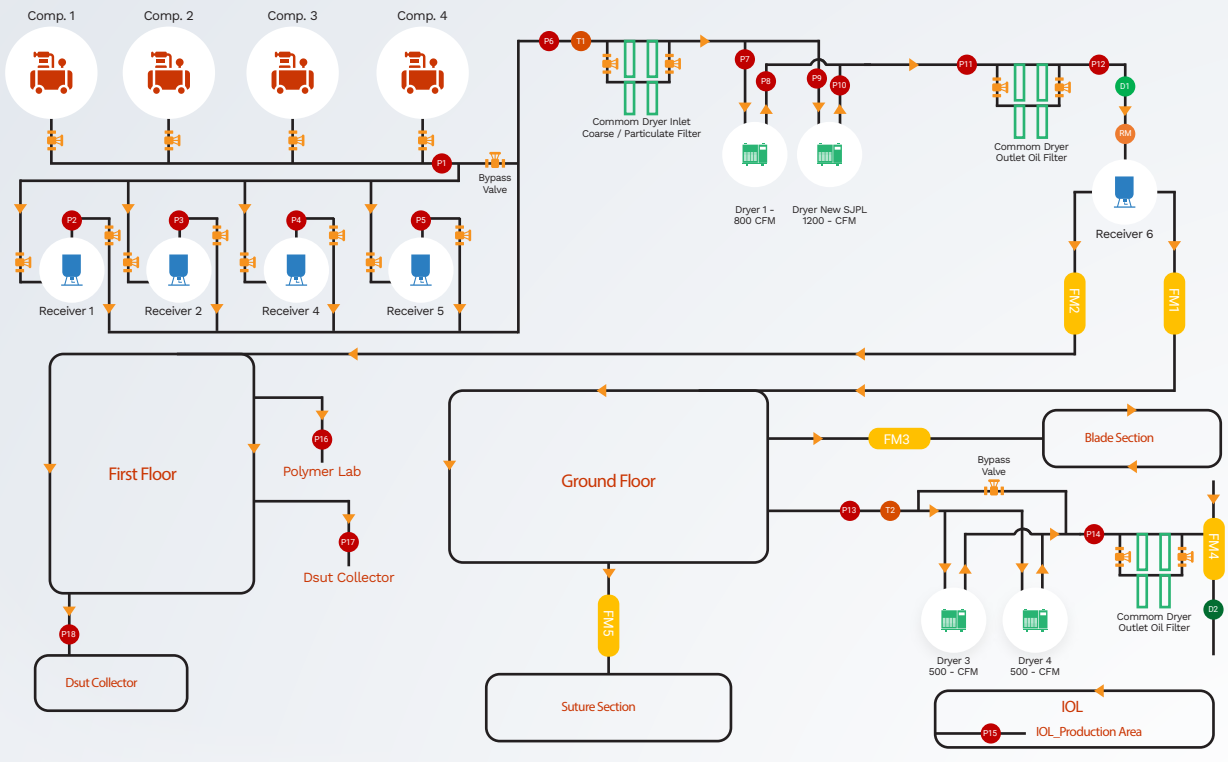
A **precision-driven** facility

Aurolab is a pharma manufacturer specializing in ophthalmic solutions like diagnostics products, surgical instruments, and intraocular lenses. As a high-precision facility, it adheres to tightly controlled production parameters, with its compressed air systems being highly critical for powering pneumatic tools.

System architecture of Aurolab's **compressed air system**

Aurolab's compressed air system has four compressors (two variable speed and two constant) and four receiver tanks. Air passes through two dryers to reach a dew point of 3-5°C before entering a secondary receiver near the demand side. It is distributed across the ground and first floors. The first floor supplies the Polymer lab, Dust Collector, and Water System, all with flow meters, while the ground floor serves the Suture, Blade, and IOL areas, also with flow meters. Additionally, the IOL section has two additional dryers for moisture control.

Aurolab's compressed air plant layout



Challenges hidden in plain sight

Aurolab was operating without a monitoring system for compressed air, which made it difficult to track consumption or detect inefficiencies in real time. Operating at 6.5–6.7 bar, pressure levels were below optimal levels, causing occasional downtime. Moisture in the air affected lens quality and increased rejection rate in the final products. The operational practices were reactive, which resulted in increased downtimes and production losses.

DeJoule's intervention: Intelligent monitoring of the compressed air system

DeJoule, our AI-powered, full-stack BMS, was deployed to eliminate energy waste and maintain utmost precision across production parameters at Aurolab while boosting the facility's performance every operational minute.

By continuously monitoring air pressure, temperature, flow, and dew point through 7 flow meters and multiple sensors, DeJoule increased the visibility of each critical parameter in the system, directly improving product quality and system uptime.

Critical Monitoring Parameters

Compressed air pressure levels

Compressed air consumption and flow rates

Air compressor performance (set points, tripping, running status)

Dew point temperature at multiple locations

Air quality standards compliance

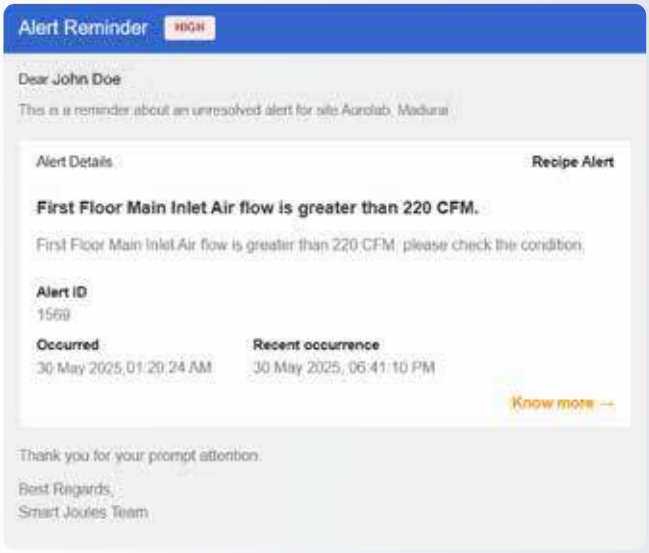
Energy consumption of the compressed air plant

Leakage detection and overconsumption alerts

Impact of **monitoring**

Pressure & Flow Monitoring

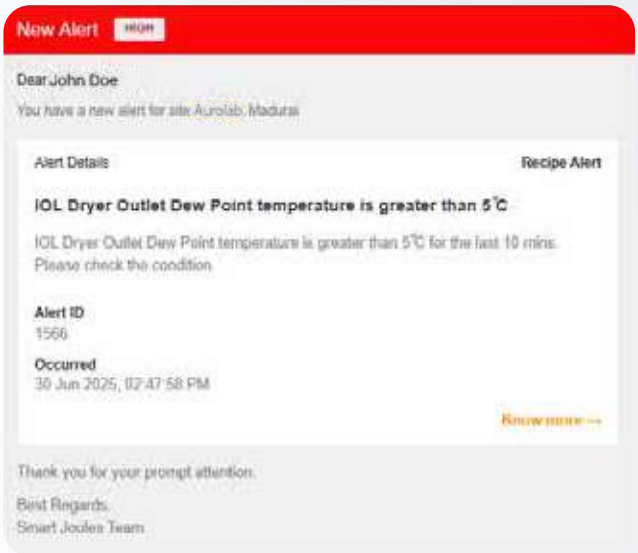
Since 2023, DeJoule has helped increase the compressed air pressure from 6.5 to 7 bar, eliminating 2 hours of daily downtime without any extra energy usage. This has been achieved by continuously monitoring the air flow to each area during distribution and triggering real-time alerts when the flow exceeds the required amount to detect over-usage or new leakages.



Compressed air flow monitoring alerts

Dew Point Control

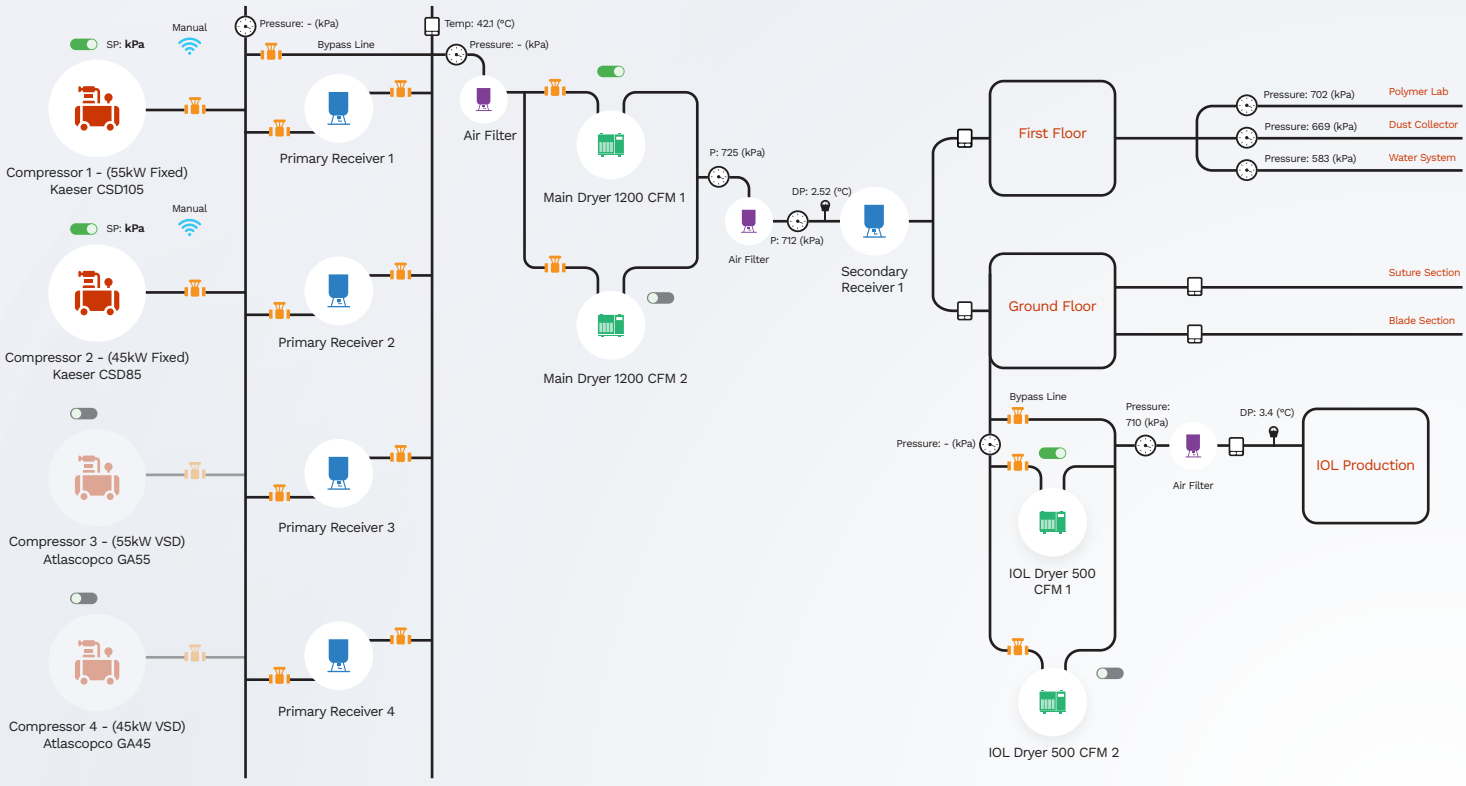
The production facility needed to keep compressed air quality within strict limits to ensure the quality of lenses and optical components. While a dew point up to 7°C remains acceptable, higher levels can lead to low-quality production. While deploying DeJoule, multiple dewpoint sensors were installed at key locations to monitor trends. The system triggers alerts via email, SMS, or WhatsApp at 5°C for early intervention and moisture-related quality control.



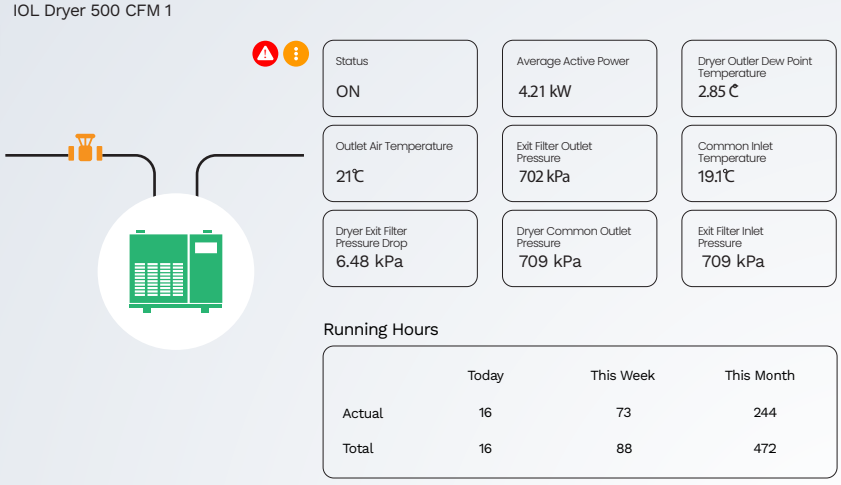
Dewpoint alerts generated from DeJoule

Seamless User Interface

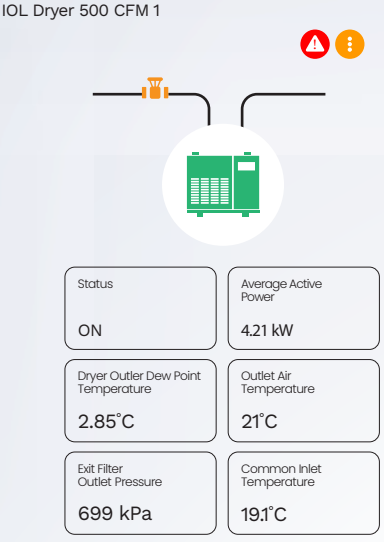
DeJoule provides the facility team with a real-time **digital twin** of the compressed air system, featuring pressure trends, dew point levels, and energy metrics. Built-in alerts flag pressure drops, dryer failures, or dew point spikes, while remote access allows teams to monitor system performance from any terminal, improving response time and control.



Aurolab's plant layout with real-time data in DeJoule in a laptop interface



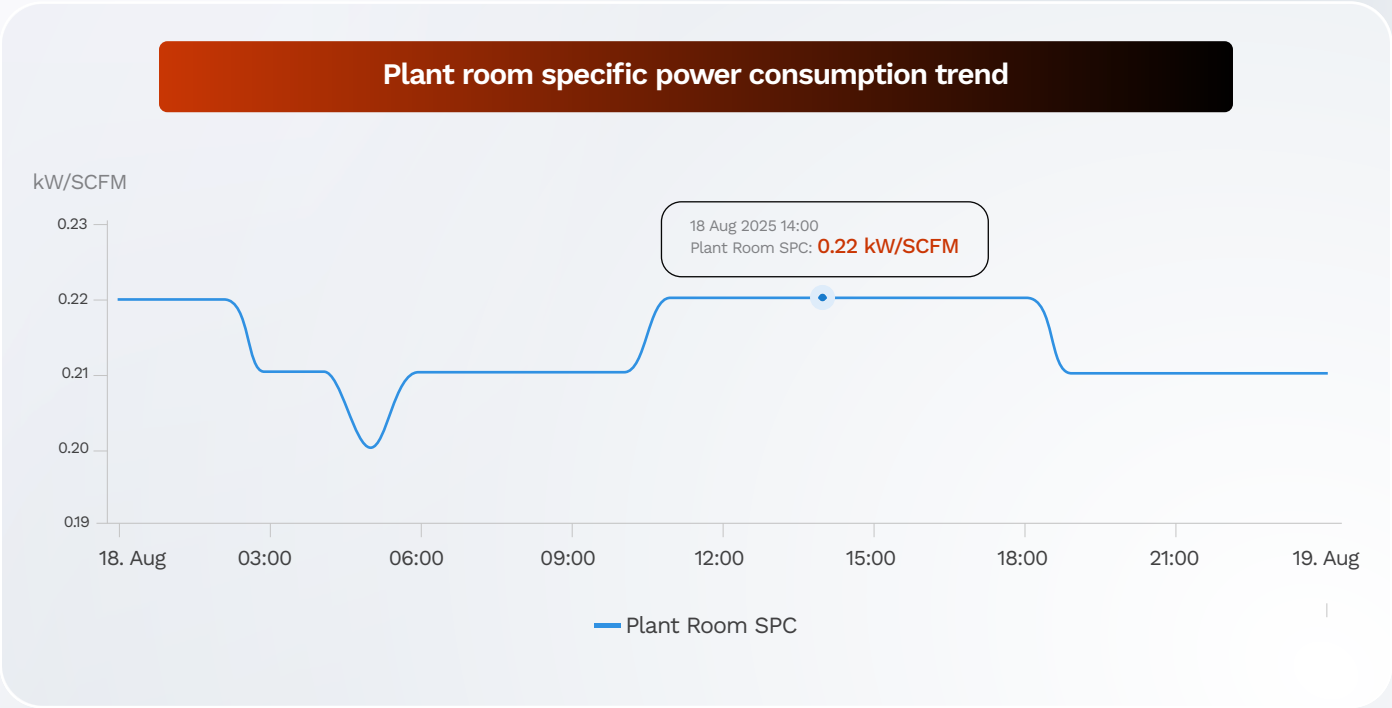
DeJoule from the tablet interface



DeJoule from the phone interface

Custom KPIs for Efficiency Monitoring

DeJoule improved efficiency tracking by using specific power consumption (SPC) as a key performance indicator in the plant room (kW/SCFM). Lower SPC values indicate more efficient energy use for compressed air, while higher values may signal a need for maintenance or upgrades.



Daily Reports

DeJoule has streamlined data collection and reporting for the operations team. Manual logging of limited data points used to consume 2-3 human-hours daily. Now, DeJoule automatically generates daily reports on key parameters, enhancing visibility into equipment health and energy efficiency, and allowing the team to focus on more productive activities.

Operational excellence
Proactive, predictive, and reliable

DeJoule transformed compressed air monitoring from a reactive task to a proactive system-wide strategy. Manual interventions are minimized, while insights drive real operational gains.

Pressure Trend Analysis

Stable air pressure is critical for maintaining the quality of ophthalmic products. By tracking pressure changes at the equipment level, we improved the system design and suggested the addition of another air receiver tank and more pressure monitoring spots. Energy monitoring as a recommendation was also given for better efficiency.

Feedback Loop

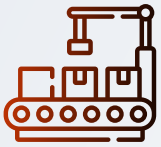
Improved transparency from logged performance data has enabled Aurolab and equipment manufacturers to get feedback faster. This has allowed the facility team to use data to fix system performance problems and plan maintenance with manufacturers accurately.

> *"Earlier, we could only react to issues. Now we predict them. Our team feels empowered to make data-backed decisions daily."* — *Operator at Aurolab Madurai*

The impact **speaks for itself**

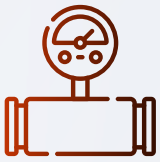
2 hours of daily downtime eliminated

~ ₹10 Lakhs saved daily with increased uptime

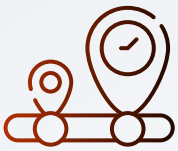


Zero unexpected production stoppages

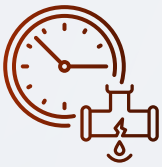
Saved 2.5 hours of daily production from quality issues



Pressure delivery increased from **6.5 to 7 bar**



Tracking of the dew point at multiple locations



Real-time alerts to detect any leakages

Real-time alerts to detect any increase in dew point

Future-proof performance with DeJoule

DeJoule has significantly improved the compressed air plant's operations by providing real-time visibility, allowing operators to identify and prevent issues proactively. It has reduced the team's workload by tracking key performance indicators and generating reports for better decision-making. With timely alerts, even when the team isn't monitoring, DeJoule has reduced daily production stoppages by 2.5 hours, resulting in savings of over ₹10 Lakh.

The case study highlights how smart monitoring can turn operational challenges into competitive advantages with measurable ROI.

Did you **know?**

In many Indian factories, compressed air quality is taken for granted, but even a small rise in moisture levels tracked by a parameter called dew point can silently ruin production. When the dew point drifts too high, excess water gets carried into the process.

The result? Contaminated output, batches rejected during quality checks, and 2–3 hours of daily production value lost. Over a year, that's lakhs of rupees wasted, without anyone noticing until it's too late.

The solution is simple: monitor dew point continuously and act before problems snowball. That's exactly what DeJoule enables—real-time dew point monitoring, smart alerts, and data-driven insights that let operations teams step in before moisture issues hit product quality.

This resulted to zero rejection losses, uninterrupted output, and productivity gains worth lakhs, just by keeping the air dry and clean.

About dejoule

DeJoule is a full-stack, intelligent building management system designed to eliminate hidden energy waste, boost operational excellence, and help buildings perform at their peak, every minute, every day.

Born from SmartJoules' mission to make energy efficiency simple, substantial, and profitable, DeJoule combines lean, frugal hardware with cloud-native capabilities and AI-driven automation to keep your building running at its best, 24/7. From hospitals to factories and commercial spaces, our solutions empower operations teams to spend less time firefighting and more time delivering measurable impact.

Since 2016, we have enabled this transformation in over 60+ buildings. Now is your turn!

Contact us for a demo

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