

KIO (Klemsan Internet Objects) Platform Case Studies





We are proud to share our experiences with KIO (Klemsan Internet Objects) platform in our own factories. We invite you to step into the digital transformation world together with us! Improve your business's efficiency, reliability, sustainability and connectivity with KIO platform.

Thanks to our KIO platform, we can monitor all energy consumption points in Klemsan production premises and monitor them instantly with the alarm system. For example, with this follow-up, we can measure the benefit of a thermal insulation on one of the injection machines in our factory on real-time basis. Another example of KIO that we carry out in our premises is the transition from fluorescent to led in lighting. As a result of these two projects, which we have monitored by implementing KIO, we managed to save $4_{\rm H}$ 6% on our electricity bill. In our own production facility, KIO and other energy efficiency improvement studies are paying off in short periods such as 6-8 months.

Besides, with the help of KIO; we avoid reactive penalties by compensation monitoring, and we are able to trace parameters like temperature, motor vibration values and air flow data for the sake of preventive maintenance.

We can categorize KIO projects in Klemsan premises as follows:

- **1-** Energy efficiency projects
- 2- Safety project
- 3- Preventive maintenance projects
- 4- Compensation control
- 5- Ongoing projects



CASE STUDIES in KLEMSAN



Energy Efficiency Project - Lighting



Lighting System Transformation



Benefits

- Reduction in electricity bill
- Improvement in ambient conditions

Energy Saving: %68

Return on Investment (ROI): **24 Months**



Energy Efficiency Project - Heat Insulation of Injection Machine





► Benefits

- Energy saving
- Increase in machine efficiency

Energy Saving: %8

Return on Investment (ROI): **8,7 Months**

Predicted annual saving: 75.000kWh Investment cost= 3300 usd



Energy Efficiency Project - Monitoring Consumption of Assembly Line



Lighting – Air Conditioner - Ventilation



Benefits

- Deeper analysis of energy consumption by monitoring breakdowns
- Comparative energy consumption analysis
- Avoiding unnecessary
 - usage of electricity



Safety Project - Protection against overvoltage or lightning



Note: Approximately 1800 lightning strikes around the world per minute.

(*) – Statement from General Directorate of Meteorology in Turkey.





Preventive Maintenance Project - Compressor



► Benefits

- Predictive and

preventive

maintenance

- Facility management
- Machine efficiency

		Fixed Assembly
RMS Velocity (mm/s)	>11.0	D
	7.1 - 11.0	D
	4.5 - 7.1	С
	3.5 - 4.5	В
	2.8 - 3.5	В
	2.3 - 2.8	В
	1.4 - 2.3	A
	0.00 - 1.4	A

Zone A: New Machine Installation Zone B: Unlimited Working Zone C: Limited Working Zone D: Stop the Machine



Preventive Maintenance Project - Air Flow Pipe







Air Compressor 90 Kw – Air Flow Sensor (Liter / Minute) Avg.

► Benefits

- Scheduled maintenance
- Air leakage detection
- Machine efficiency

Energy Saving: %7

Return on Investment (ROI):

12 Months



Compensation Control





Step 10 Temperature Sensor – Thermocouple Temperature Sensor 1 (°C) Avg.
Kemalpaşa – Temperature Avg.



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Benefits

- Preventive maintenance
- Facility management
- Comparison with outdoor
 - temperature



Ongoing Projects

- Uninterruptable Power Supplies Monitoring
- **>** Determination of Air Conditioning Set Values by Measuring the Outdoor and Indoor

Air Temperature (Klemsan Temperature Sensor)

Preventing Excessive Water Consumption (Monitoring of Water Meters)



Visit our website for detailed info !

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