

JVSOLINDIA INC



Furnace Monitoring System

Zone Monitoring | Data Capture | Web Reports

Developed by JVSOL India Inc.

PLC Data Capture

Web Dashboard

Auto Reports

Project Overview

Understanding the Furnace Monitoring System

Industrial furnaces operate continuously across multiple temperature zones and pressure conditions. Without real-time monitoring, process deviations go undetected — leading to quality issues, energy waste, and unplanned downtime.

Challenge: Zone temperatures, pressures, and process data were not being captured or tracked systematically. There was no way to review historical shift data or generate reports for management.

Solution: JVSOL India Inc. designed and deployed a complete end-to-end Furnace Monitoring System:

PLC Data Acquisition Desktop App — Automatically reads live process values from the furnace controller every 10 seconds

Web-Based Live Dashboard — Displays real-time gauge readings for all 4 temperature zones and 2 pressure parameters

Report Module — Generates shift-wise and date-range reports downloadable as Excel, CSV, and PDF

Live Trend Charts — Time-series graphs per parameter, refreshed in real time



Parameters Monitored

Key Process Variables Captured from the Furnace

Temperature Zones

Zone-1 Actual Temperature [°C]

Zone-2 Actual Temperature [Seconds]

Zone-3 Actual Temperature [KG]

Zone-4 Actual Temperature [KG]

Pressure Parameters

Pressure [KG]

Pressure-1 [KG]

Data Collection

All 6 parameters read simultaneously every 10 seconds

Data tagged to Shift A, B, or C automatically

Stored in cloud-hosted MySQL database (Hostinger) — accessible from anywhere

PLC Interface

Siemens PLC at 192.168.1.10 — reading M-bit and Q-bit memory areas

Rack 0, Slot 1 configuration

Furnace Monitoring System — JVSOL India Inc.

How It Works

End-to-End System — From Furnace to Dashboard

Step 1 — Furnace PLC

The furnace controller (Siemens PLC) holds live temperature and pressure values in its memory at all times

Step 2 — Data Acquisition Desktop App

The JVSOL Furnace Monitoring desktop application connects to the PLC over the plant network and reads all 6 parameters every 10 seconds — fully automatic after startup

Step 3 — Database Storage

Each reading is stored instantly to a cloud-hosted MySQL database with date, time, and shift information — accessible remotely

Step 4 — Web Dashboard

Any browser connected to the internet can open the Furnace Monitoring web dashboard to view live readings as animated gauges for all zones

Step 5 — Reports & Trends

Supervisors and managers generate shift reports, daily summaries, or custom date-range reports and download them as Excel / PDF / CSV

Desktop Application

Furnace Monitoring App — PLC Data Acquisition

The JVSOL Furnace Monitoring desktop application is the core data engine. It runs on a plant PC and manages all PLC communication and database logging automatically.

Key Features

Auto-Start — on launch, automatically connects to PLC and database simultaneously

Live parameter table — all 6 values displayed with parameter name and unit type

Status log — timestamped connection events, acquisition start/stop messages

PLC status bar — shows Connected / Disconnected state with IP address

DB status bar — shows connected database name in real time

Controls Available

Connect / Disconnect PLC | **Connect / Disconnect DB**

Start / Stop Acquisition | **Settings (configure parameters)**

Clear Log | **Auto-Start toggle**

Stores records every 10 seconds — tagged to active shift automatically

Cloud database: srv1000.hstgr.io — data accessible from any location





Furnace Monitoring System



Disconnect PLC

Disconnect DB

Stop Acquisition

 Auto-Start

Settings

Clear Log

PLC: Connected (192.168.1.10)

DB: Connected (u839944081_furnace)

Live Furnace Values

	Parameter	Value	Unit / Type
1	Zone-1 Actual Temperature	–	Int
2	Zone-2 Actual Temperature	–	Int
3	Zone-3 Actual Temperature	–	Int
4	Zone-4 Actual Temperature	–	Int
5	Pressure	–	Int
6	Pressure-1	–	Int

Shift: – Time: – Records written: 0

Status Log

```
[15:06:10] Auto-connecting PLC and Database ...  
[15:06:10] Connecting to PLC 192.168.1.10 Rack=0 Slot=1 ...  
[15:06:10] PLC connected: 192.168.1.10  
[15:06:10] Connecting to DB srv1000.hstgr.io:3306 db=u839944081_furnace ...  
[15:06:10] Both PLC and DB connected – Auto-Start triggered.  
[15:06:10] Acquisition started [interval=10s]  
[15:06:10] Database connected: srv1000.hstgr.io:3306 [u839944081_furnace]  
[15:06:10] Acquisition started [interval=10s]
```



Web Dashboard

Browser-Based Live Furnace Status Dashboard

The JVSOL Furnace Monitoring web dashboard gives plant operators and managers a real-time visual view of the furnace's operating state — accessible from any browser, including mobile.

Live Status Page

- 6 animated semi-circular gauges — one per monitored parameter
- Gauge needle and fill color change to reflect current live values
- Red / Green color coding for instant status recognition
- Auto-Refresh keeps readings current without manual page reload

Navigation & Usability

- Search bar to quickly find any parameter by name
- Furnace selector dropdown to switch between furnace tables
- "Refresh Now" button for immediate manual update
- Parameters button to configure units and display settings

Client branding support — client logo placeholder built into the header

Dark mode interface — optimized for control room conditions



Web Dashboard — Screenshot

Furnace Live Status — All 6 Parameters as Real-Time Gauges



FURNACE MONITORING SYSTEM

Theme



Furnace Live Status

Search parameters...

Auto-Refresh: ON

Refresh Now

Parameters

Furnace

12-03-26 15:14:43

Zone-1 Actual Temperature



Zone-2 Actual Temperature



Zone-3 Actual Temperature



Zone-4 Actual Temperature



Pressure



Pressure-1



Report Generation

Flexible Shift-wise and Date-Range Reports

The reporting module enables supervisors and managers to extract historical furnace data in a structured format at any time.

Report Filters

Select Furnace — choose the active furnace data table

Select Shift — Shift A (6 AM–2 PM), Shift B (2 PM–10 PM), Shift C (10 PM–6 AM), or Complete Day

Date Range — any start and end date combination

Report Output

Full tabular view in browser: ID, Date, Time, Shift, all 6 parameter values, Timestamp

Export formats: Excel (.xlsx), CSV, PDF — one click per format

What the Report Shows

Zone-1 to Zone-4 Actual Temperature

Pressure and Pressure-1 readings

Records at 10-second intervals across the selected shift / date range

Midnight-crossing Shift C handled correctly — records assigned to right shift even across two calendar dates



Report

Select Furnace

Furnace

Shift

Complete Day (All Shifts)

Date Range

12 - 03 - 2026

to

12 - 03 - 2026

Submit

Excel

CSV

PDF



Report generated successfully!

Furnace Report — Data Table

Shift-wise Parameter Records with Full Timestamp History

Furnace Report

ID	Date	Time	Shift	Zone-1 Actual Temperature	Zone-2 Actual Temperature	Zone-3 Actual Temperature	Zone-4 Actual Temperature	Pressure	Pressure-1	Timestamp
0	12-03-2026	13:05:55	A	125	135	0	0	125.00	0.00	2026-03-12 13:05:55
0	12-03-2026	13:06:05	A	125	135	0	0	125.00	0.00	2026-03-12 13:06:05
0	12-03-2026	13:06:15	A	125	135	0	0	125.00	0.00	2026-03-12 13:06:15
0	12-03-2026	13:06:25	A	125	135	0	0	125.00	0.00	2026-03-12 13:06:25
0	12-03-2026	13:06:35	A	125	135	0	0	125.00	0.00	2026-03-12 13:06:35
0	12-03-2026	13:06:45	A	125	135	0	0	125.00	0.00	2026-03-12 13:06:45
0	12-03-2026	13:06:55	A	125	135	0	0	125.00	0.00	2026-03-12 13:06:55
0	12-03-2026	13:07:05	A	125	135	0	0	125.00	0.00	2026-03-12 13:07:05
0	12-03-2026	13:07:15	A	125	135	0	0	125.00	0.00	2026-03-12 13:07:15
0	12-03-2026	13:07:25	A	125	135	0	0	125.00	0.00	2026-03-12 13:07:25
0	12-03-2026	13:07:35	A	125	135	0	0	125.00	0.00	2026-03-12 13:07:35
0	12-03-2026	13:07:45	A	125	135	0	0	125.00	0.00	2026-03-12 13:07:45
0	12-03-2026	13:07:55	A	125	135	0	0	125.00	0.00	2026-03-12 13:07:55
0	12-03-2026	13:08:05	A	125	135	0	0	125.00	0.00	2026-03-12 13:08:05
0	12-03-2026	13:08:15	A	125	135	0	0	125.00	0.00	2026-03-12 13:08:15
0	12-03-2026	13:08:25	A	125	135	0	0	125.00	0.00	2026-03-12 13:08:25
0	12-03-2026	13:08:35	A	125	135	0	0	125.00	0.00	2026-03-12 13:08:35
0	12-03-2026	13:08:45	A	125	135	0	0	125.00	0.00	2026-03-12 13:08:45

Live Trend Charts

Real-Time Parameter Trends for All Furnace Zones

The Furnace Live Trend page displays time-series line charts for each monitored parameter — updated in real time as new data arrives from the PLC.

Chart Features

- Individual chart per parameter — Zone-1 through Zone-4 temperatures and both pressure readings
- X-axis shows timestamp, Y-axis shows actual process value
- Area fill under the line for easy trend visualization
- Each chart has a distinct color for quick identification

Controls

- Refresh button — pulls latest data from database immediately
- Download All — saves all 6 charts as PNG or PDF in a single click
- Individual PNG / PDF buttons per chart

Practical Use

- Operators can spot temperature drifts or pressure anomalies at a glance
- Useful for post-shift review and quality investigations

No additional software needed — runs in any browser



Zone-1 to Zone-4 Temperature Trend Charts in Real Time



FURNACE MONITORING SYSTEM



Furnace Live Trend

[Download All](#) [Refresh](#) 12/03/26 15:15:36



Live Trends — Pressure Channels

Pressure, Pressure-1, Zone-3 and Zone-4 Trend Charts



WhatsApp Alert System

Automated Hourly Production Reports Delivered to WhatsApp

The Furnace Monitoring System includes automated WhatsApp alerts — formatted production reports sent to a WhatsApp group every hour, keeping supervisors informed without opening any dashboard.

What Each Alert Contains

**Production Report with timestamp and Excel filename
Date, Shift (A / B / C), and hourly time slot (e.g. 06:00-07:00)
Value1, Value2, LMT (Limit), CUMM (Cumulative total), Delay columns
Snapshot Time for each record row
Total row count and file creation time at the bottom**

How It Works

**Reports generated automatically for each active shift
An Excel file is created and a formatted summary sent to WhatsApp group "Furnace Alert"
Alerts sent at regular intervals: Shift A at 11:40 AM and 1:40 PM, Shift B at 2:40 PM**

No manual action required — supervisors receive live production data on their phones



WhatsApp Alert System

Automated Production Reports Sent to WhatsApp Every Hour

A screenshot of a WhatsApp chat titled "Furnace Alert" from JVSOL INDIA INC. The chat contains three automated production reports. Each report includes a table with columns: Date, Shift, Hour, Value1, Value2, LMT, CLUMM, Delay, and Snapshot Time. The reports are for Shift A (13:35:48) and Shift B (14:35:48). Each report is followed by a summary card with file names and a "Rows: 8" indicator.

Furnace Alert
Rows: 8
Sent: 11:40 AM 11:40 am

PRODUCTION REPORT
17-12-2025 13:35:48
production_17-12-2025_ShiftA_20251217_133548.xlsx

Date	Shift	Hour	Value1	Value2	LMT	CLUMM	Delay	Snapshot Time
12/17/25	A	06:00 - 07:00	80	80	50	50		17-12-2025 13:35:4
12/17/25	A	07:00 - 08:00	70	150	60	110		17-12-2025 13:35:4
12/17/25	A	08:00 - 09:00	90	240	70	180		17-12-2025 13:35:4
12/17/25	A	09:00 - 10:00	100	340	40	220		17-12-2025 13:35:4
12/17/25	A	10:00 - 11:00	90	430	60	280		17-12-2025 13:35:4
12/17/25	A	11:00 - 12:00	70	500	50	330		17-12-2025 13:35:4
12/17/25	A	12:00 - 01:00	70	570	80	410		17-12-2025 13:35:4
12/17/25	A	01:00 - 02:00	-	-	-	-		17-12-2025 13:35:4

Total Rows: 8
File Created: 01:35 PM

Production Report
24 File Time: 17-12-2025 13:35:48
production_17-12-2025_ShiftA_20251217_13

Rows: 8
Sent: 01:40 PM 1:40 pm

PRODUCTION REPORT
17-12-2025 14:35:48
production_17-12-2025_ShiftB_20251217_143548.xlsx

Date	Shift	Hour	Value1	Value2	LMT	CLUMM	Delay	Snapshot Time
12/17/25	B	02:00 - 03:00	70	70	70	70		17-12-2025 14:35:4
12/17/25	B	03:00 - 04:00	-	-	-	-		17-12-2025 14:35:4
12/17/25	B	04:00 - 05:00	-	-	-	-		17-12-2025 14:35:4
12/17/25	B	05:00 - 06:00	-	-	-	-		17-12-2025 14:35:4
12/17/25	B	06:00 - 07:00	-	-	-	-		17-12-2025 14:35:4
12/17/25	B	07:00 - 08:00	-	-	-	-		17-12-2025 14:35:4
12/17/25	B	08:00 - 09:00	-	-	-	-		17-12-2025 14:35:4
12/17/25	B	09:00 - 10:00	-	-	-	-		17-12-2025 14:35:4

Total Rows: 8
File Created: 02:35 PM

Production Report
24 File Time: 17-12-2025 14:35:48
production_17-12-2025_ShiftB_20251217_14

Rows: 8
Sent: 02:40 PM 2:40 pm

Message

Key Benefits

Why the Furnace Monitoring System Delivers Real Value

100% Automated Data Capture

No manual operator intervention — every 10 seconds, data is captured and stored automatically

Complete Zone Visibility

All 4 temperature zones and both pressure parameters visible simultaneously on one screen

Shift-Based Accountability

Every record tagged to Shift A, B, or C — instant shift performance comparison for supervisors

Client-Branded Interface

Web dashboard includes JVSOL branding and a dedicated client logo slot for professional presentation

Scalable System

Additional parameters or furnace zones can be added via configuration — no reprogramming required



About JVSOL India Inc.

Industrial Automation Specialists

JVSOL India Inc. is a specialist industrial automation company delivering practical, reliable monitoring and control solutions for heavy industries — including furnaces, foundries, steel plants, and manufacturing units.

Our Expertise

PLC integration and data acquisition (Siemens, Mitsubishi, Allen-Bradley)

Custom desktop monitoring applications (Windows)

Web-based plant monitoring dashboards

Cloud-hosted industrial databases

Automated reporting systems and shift analytics

Our Approach

We build systems that plant teams can actually use — simple interfaces, reliable operation, zero unnecessary complexity

Contact us to discuss your Furnace Monitoring requirements



Furnace Monitoring System

THANKYOU

Contact Us

 Email: mahaboob@jvsol.co.in

 Website: www.jvsol.co.in

 Phone: +91-7795345309, 9380905907

COMPANY NAME

