JVSOLINDIA INC

MBF Monitoring & Data Acquisition System

Real-Time Monitoring | Data Capture | Web Reports

Developed by JVSOL India Inc. for Furnace Operations

PLC Data Capture

Web Dashboard

Auto Reports

Project Overview

Understanding the MBF Sand Plant Monitoring System

The Mini Blast Furnace (MBF) operates 24x7 and generates critical process data — temperatures, pressures, water flows, and blast parameters — across two stoves.

Challenge: This data was previously not captured or monitored systematically, making it difficult to track performance, detect anomalies, or generate shift reports.

Solution: JVSOL India Inc. designed and deployed a complete end-to-end monitoring system consisting of:

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

Web-Based Live Dashboard — Shows real-time gauge readings for all parameters across Stove-1 and Stove-2

Report Module — Generates shift-wise and date-range reports in Excel, CSV, and PDF formats

Live Trend Charts — Visual trend graphs for each parameter updated in real time

Parameters Monitored

Key Process Variables Captured from Each Furnace Stove

Temperature Parameters
Hot Blast Temperature-1 & 2 | Cold Blast Temperature-1 & 2

Pressure Parameters
PT-131 | PT-151 (Blast Pressure Sensors)

Flow Parameters
FT-131 | FT-151 (Blast Flow Meters)
Tuy-1, Tuy-2, Tuy-3, Tuy-4 Water Flow (Tuyere Cooling)

Temperature Sensors
TE-131 | TE-151 (Thermoelements)

All parameters monitored simultaneously for Stove-1 and Stove-2
Data logged every 10 seconds — 24 hours a day, across all shifts

How It Works

System Architecture — From Furnace to Dashboard

Step 1 — PLC on the Furnace
The furnace controller (PLC) stores live process data in its memory in real time

Step 2 — Data Acquisition App
The JVSOL Desktop Application connects to the PLC over the plant network and reads all parameter values every 10 seconds automatically

Step 3 — Database Storage
Captured data is stored in a MySQL database with date, time, and shift information — one record every 10 seconds, 24x7

Step 4 — Web Dashboard
Any browser on the plant network can open the web dashboard to view live readings, gauges, and trends for both stoves

Step 5 — Reports
Operators or managers can generate shift reports, daily reports, or custom date range reports and download them as Excel / PDF

JVSOLINDIA INC

Desktop Application

PLC Data Acquisition App — Built for the MBF Plant

The JVSOL Data Acquisition Application is the backbone of this system. It runs silently on a plant PC and handles all communication with the furnace controllers.

Key Capabilities

- Connects to Stove-1 and Stove-2 PLC simultaneously
- Reads 16 process parameters per stove every 10 seconds
- Auto-reconnect if the network drops — no manual intervention needed
- Live data table shows the latest values on screen
- All data saved to the database instantly after each read cycle

Monitoring Modes

- Timed Mode — data is collected at fixed intervals (10 seconds)
- Shift Tracking — records are tagged to Shift A, B, or C automatically

Completely configurable — parameters, intervals, PLC addresses can be updated without changing the program

JVSOLINDIA INC

Multi PLC Data Acquisition System By JVSOL.IND

JVSOL INDIA INC

Multi PLC Data Acquisition System

CLIENT LOGO

PLC Connection Settings

PLC	IP Address	Rack	Slot	Status
stove1 (Timed 10s):	192.168.1.10	0	1	●
stove2 (Timed 10s):	192.168.1.10	0	1	●

PLC Auto-connect: ON

Database Connection Status

Connected

Test Database Connection | Sync DB Schema

Configure in Master Parameter Settings

Master Parameter Settings | Shift: B

Connect to PLCs | Disconnect | Stop Monitoring

System Status

```
[15:48:43] ✓ stove1 reconnected successfully
[15:48:43] ✓ stove2 reconnected successfully
[15:48:44] Polling "stove1" every 10s
[15:48:44] Polling "stove2" every 10s
[15:48:44] Monitoring started — all PLCs from registry
[15:48:45] stove2 data stored at 15:48:45
[15:48:45] stove1 data stored at 15:48:45
```

stove1 | stove2 | M-bit Data

IP: 192.168.1.10 | Timed 10s | Table: stove1

Live Data — stove1

	Parameter	Value
1	Id	17019
2	Hot Blast Temperature-1	0.00
3	Cold Blast Temperature-1	-0.00
4	Hot Blast Temperature-2	27183167103014668966297 6.00
5	Cold Blast Temperature-2	-0.00

Web Dashboard

Browser-Based Live Monitoring for Plant Personnel

The JVSOL Web Dashboard provides a clear, visual view of the furnace's current operating condition — accessible from any PC or tablet on the plant network without installing any software.

Live Status Page

- Displays all 16 parameters as semi-circular gauges for each stove
- Gauge needle moves in real time to reflect current values
- Color-coded indicators for quick status recognition
- Auto-refresh keeps data current without manual page reload

Stove Selection

- Toggle between Stove-1 and Stove-2 with a single click
- Search bar to quickly locate any specific parameter

Theme Support

- Dark mode optimized for control room environments
- Professional interface with JVSOL and client branding

Report Generation

Flexible Shift-wise and Date-Range Reports

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

Report Filters Available

- Select Table — Stove-1 or Stove-2
- 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 — pick any start and end date

Export Formats

- Excel (.xlsx) — for analysis and record keeping
- CSV — for integration with other tools
- PDF — for printing and formal submission

Shift Intelligence

- Midnight-crossing shifts handled automatically
- Records tagged to correct shift even when the shift spans two calendar dates

JVSOLINDIA INC

Live Trend Charts

Real-Time Parameter Trends for Instant Analysis

The trend module displays time-series graphs for each process parameter, enabling operators to spot changes or anomalies at a glance.

Features

- Individual trend chart per parameter — no cluttered combined graphs
- X-axis shows timestamp, Y-axis shows process unit value
- Live Refresh button to update trends instantly
- Download All — save all charts as PNG or PDF in one click

How to Use

- Navigate to the Trend page for the desired stove
- Charts load automatically showing the most recent data window
- Use the Refresh button during active furnace operation to see latest trends

This feature helps the team proactively detect process deviations before they become problems

JVSOLINDIA INC

JVSOL INDIA INC

FURNACE(MBF) SAND PLANT

Theme

CLIENT LOGO

Stove-1 Live Status

Search parameters...

Auto-Refresh: ON

↻ Refresh Now

Parameters

Stove-1 ▼

12-03-26 11:54:14

Hot Blast Temperature-1

0 (0 – 1000) [BAR]

Cold Blast Temperature-1

2.7184085837338653e+23 (0 – 1000) [BAR]

Hot Blast Temperatute-2

0 (0 – 1000) [BAR]

Cold Blast Temperature-2

2.7184091241658205e+23 (0 – 1000) [BAR]

Tuy-1 Water Flow

0 (0 – 1000) [Liters]

Tuy-2 Water Flow

2.7183179713093626e+23 (0 – 1000) [Liters]

Tuy-3 Water Flow

0 (0 – 1000) [Liters]

Tuy-4 Water Flow

0 (0 – 1000) [Liters]

PT-131

0 (0 – 1000) [BAR]

PT-151

0 (0 – 1000) [BAR]

FT-131

0 (0 – 1000) [BAR]

FT_151

0 (0 – 1000) [BAR]

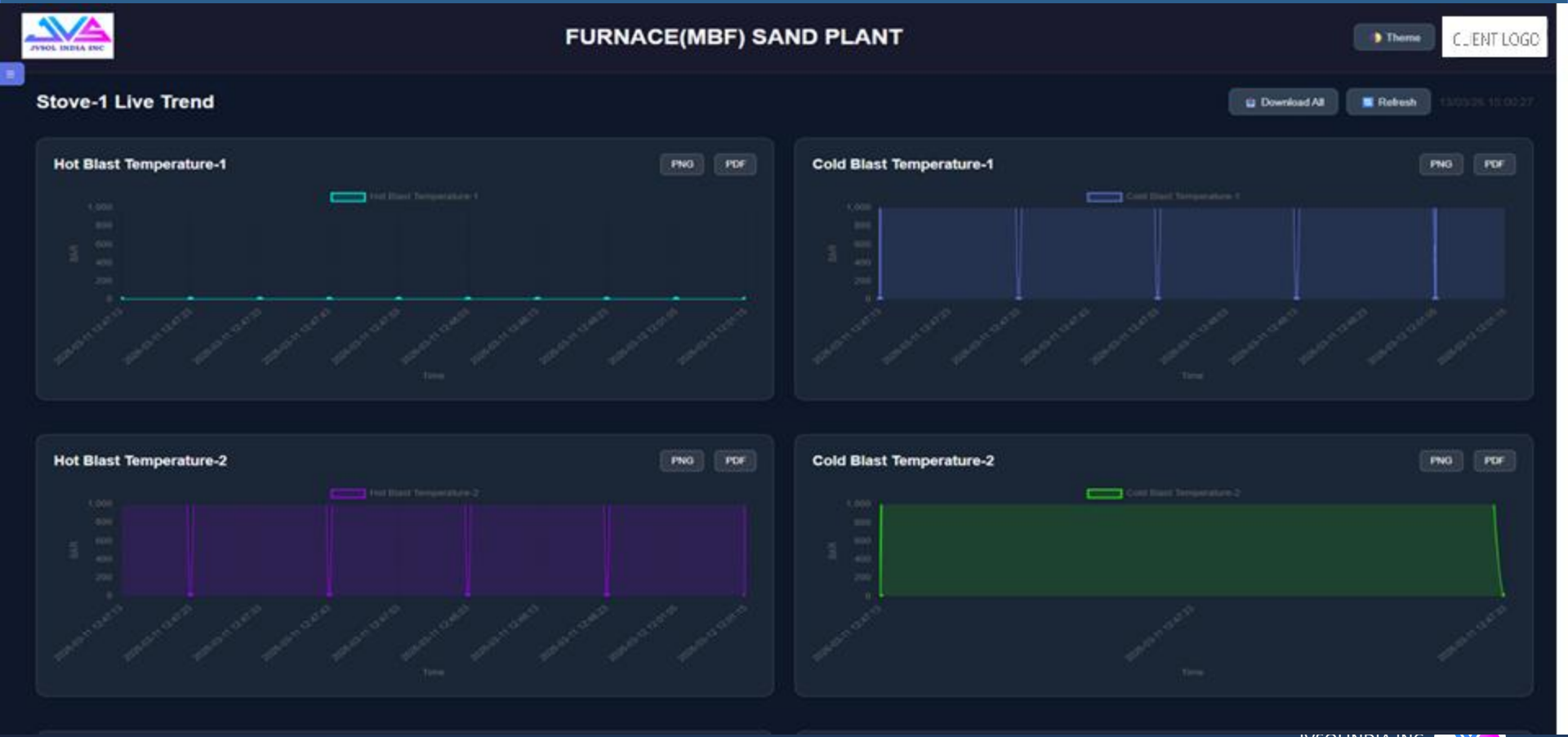
TE-131

0 (0 – 1000) [BAR]

TE-151

0 (0 – 1000) [BAR]

Live Trends — Screenshot



Key Benefits

Why the MBF Monitoring System Delivers Real Value

100% Automated Data Capture
No manual logging — eliminates human error and saves operator time every shift

Complete Process Visibility
All critical furnace parameters visible on one screen, updated every 10 seconds

Shift-Based Accountability
Every record tagged to a shift — instant shift-wise performance review for supervisors

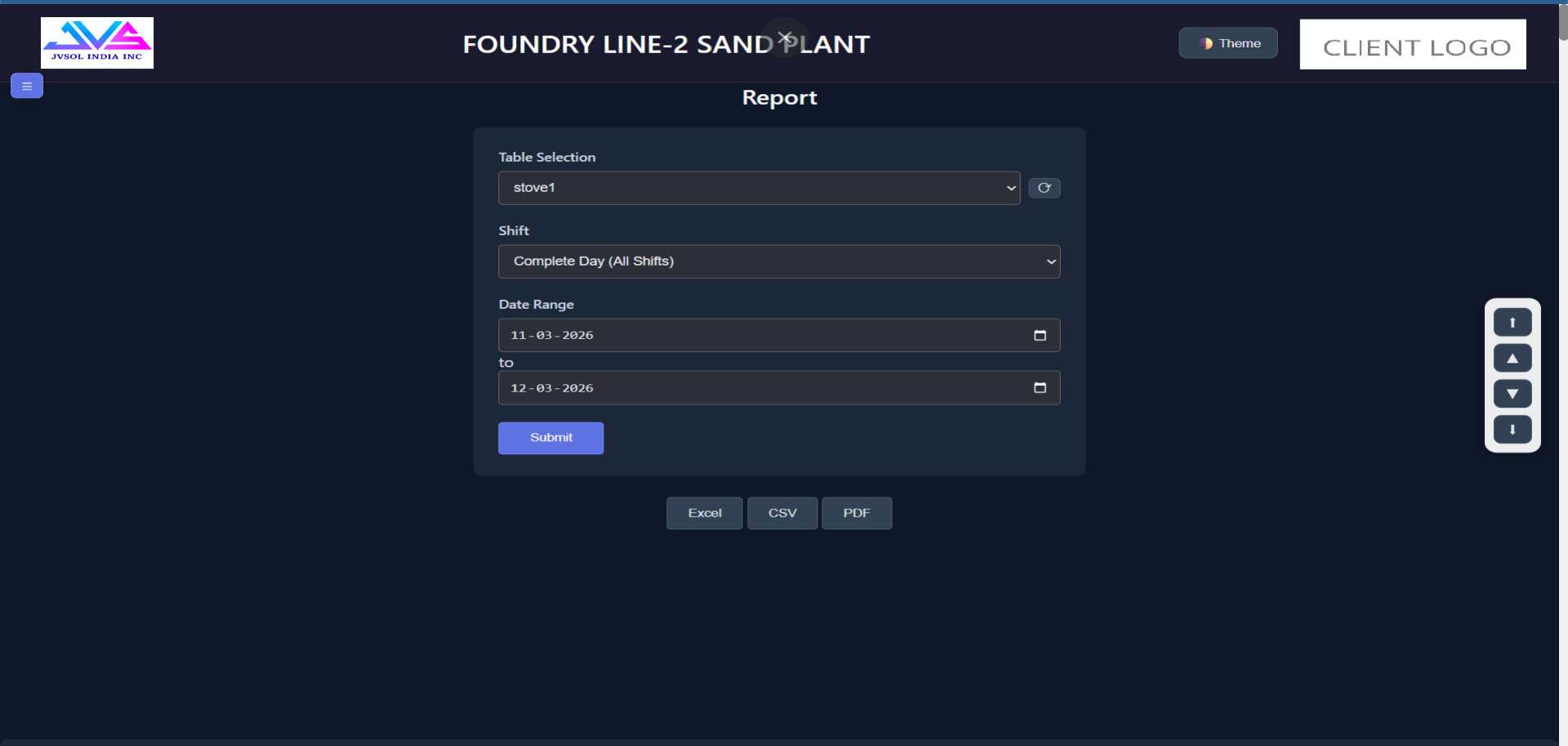
Historical Data at Any Time
Months of data stored and retrievable instantly for trend analysis or audits

No Specialized Hardware
Runs on standard plant PC — dashboard accessible from any browser on the plant LAN

Scalable Design
Additional stoves or parameters can be added with simple configuration changes — no reprogramming required

Report Filter Page — Screenshot

Select Table, Shift, and Date Range to Generate Reports



Deliverables

What JVSOL India Inc. Provides with this System

Software Deliverables
- PLC Data Acquisition Desktop Application (Windows executable)
- Web-Based Monitoring Dashboard (hosted on plant server)
- Configuration File for easy parameter management
- MySQL Database setup and schema

Installation & Commissioning
- On-site installation and network configuration
- PLC connectivity testing and validation
- User training for operators and supervisors

Support
- Post-commissioning support and troubleshooting
- Configuration updates for new parameters or stoves
- System is fully owned by the client after handover

stove1 — Report

604 rows | 20 columns | Table: stove1

Id	Date	Time	Date	Time	Hot Blast Temperature-1	Cold Blast Temperature-1	Hot Blast Temperature-2	Cold Blast Temperature-2	Tuy-1 Water Flow	Tuy-2 Water Flow	Tuy-3 Water Flow	Tuy-4 Water Flow
36	2026-03-11	00:00:00	2026-03-11	00:00:00	80	100	70	102	87	86	58	92
37	2026-03-11	00:30:00	2026-03-11	00:30:00	81	101	71	103	88	87	59	93
38	2026-03-11	01:00:00	2026-03-11	01:00:00	82	102	72	104	89	88	60	94
39	2026-03-11	01:30:00	2026-03-11	01:30:00	83	103	73	105	90	89	61	95
40	2026-03-11	02:00:00	2026-03-11	02:00:00	84	104	74	106	91	90	62	96
41	2026-03-11	02:30:00	2026-03-11	02:30:00	85	105	75	107	92	91	63	97
42	2026-03-11	03:00:00	2026-03-11	03:00:00	86	106	76	108	93	92	64	98
43	2026-03-11	03:30:00	2026-03-11	03:30:00	87	107	77	109	94	93	65	99
0	2026-03-11	11:09:09	2026-03-11	11:09:09	0.00	-0.00	2718316710301466896629 76.00	-0.00	-107614528.00	-107610520.00	0.00	0.00
0	2026-03-11	11:09:19	2026-03-11	11:09:19	0.00	2718408583733865254748 16.00	0.00	2718409124165820539207 68.00	0.00	2718317971309362560368 64.00	0.00	0.00
0	2026-03-11	11:09:29	2026-03-11	11:09:29	0.00	-0.00	2718316710301466896629 76.00	-0.00	-107614528.00	-107610520.00	0.00	0.00
0	2026-03-11	11:09:39	2026-03-11	11:09:39	0.00	2718408583733865254748 16.00	0.00	2718409124165820539207 68.00	0.00	2718317971309362560368 64.00	0.00	0.00
0	2026-03-11	11:09:49	2026-03-11	11:09:49	0.00	-0.00	2718316710301466896629 76.00	-0.00	-107614528.00	-107610520.00	0.00	0.00
0	2026-03-11	11:09:59	2026-03-11	11:09:59	0.00	2718408583733865254748 16.00	0.00	2718409124165820539207 68.00	0.00	2718317971309362560368 64.00	0.00	0.00
0	2026-03-11	11:10:09	2026-03-11	11:10:09	0.00	-0.00	2718316710301466896629 76.00	-0.00	-107614528.00	-107610520.00	0.00	0.00
0	2026-03-11	11:10:19	2026-03-11	11:10:19	0.00	2718408583733865254748 16.00	0.00	2718409124165820539207 68.00	0.00	2718317971309362560368 64.00	0.00	0.00
0	2026-03-11	11:10:29	2026-03-11	11:10:29	0.00	-0.00	2718316710301466896629 76.00	-0.00	-107614528.00	-107610520.00	0.00	0.00
0	2026-03-11	11:10:39	2026-03-11	11:10:39	0.00	2718408583733865254748 16.00	0.00	2718409124165820539207 68.00	0.00	2718317971309362560368 64.00	0.00	0.00
0	2026-03-11	11:10:49	2026-03-11	11:10:49	0.00	-0.00	2718316710301466896629 76.00	-0.00	-107614528.00	-107610520.00	0.00	0.00
0	2026-03-11	11:10:59	2026-03-11	11:10:59	0.00	2718408583733865254748 16.00	0.00	2718409124165820539207 68.00	0.00	2718317971309362560368 64.00	0.00	0.00
0	2026-03-11	11:11:09	2026-03-11	11:11:09	0.00	-0.00	2718316710301466896629 76.00	-0.00	-107614528.00	-107610520.00	0.00	0.00
0	2026-03-11	11:11:19	2026-03-11	11:11:19	0.00	2718408583733865254748 16.00	0.00	2718409124165820539207 68.00	0.00	2718317971309362560368 64.00	0.00	0.00
0	2026-03-11	11:11:29	2026-03-11	11:11:29	0.00	-0.00	2718316710301466896629 76.00	-0.00	-107614528.00	-107610520.00	0.00	0.00
0	2026-03-11	11:11:39	2026-03-11	11:11:39	0.00	2718408583733865254748 16.00	0.00	2718409124165820539207 68.00	0.00	2718317971309362560368 64.00	0.00	0.00
0	2026-03-11	11:11:49	2026-03-11	11:11:49	0.00	-0.00	2718316710301466896629 76.00	-0.00	-107614528.00	-107610520.00	0.00	0.00
0	2026-03-11	11:11:59	2026-03-11	11:11:59	0.00	2718408583733865254748 16.00	0.00	2718409124165820539207 68.00	0.00	2718317971309362560368 64.00	0.00	0.00
0	2026-03-11	11:12:09	2026-03-11	11:12:09	0.00	-0.00	2718316710301466896629 76.00	-0.00	-107614528.00	-107610520.00	0.00	0.00
0	2026-03-11	11:12:19	2026-03-11	11:12:19	0.00	2718408583733865254748 16.00	0.00	2718409124165820539207 68.00	0.00	2718317971309362560368 64.00	0.00	0.00

Shift Management

Three-Shift Coverage — A, B, and C

The system is pre-configured to recognize three shifts:

Shift A — 6:00 AM to 2:00 PM (Day Shift)
Shift B — 2:00 PM to 10:00 PM (Afternoon Shift)
Shift C — 10:00 PM to 6:00 AM (Night Shift)

Every data record captured by the system is automatically tagged with the active shift at the time of capture. This makes it very simple to:

- Compare production performance across shifts
- Hold shift supervisors accountable with data-backed reports
- Generate end-of-shift summaries instantly

Shift C spans midnight — the system handles this correctly by tracking the actual shift window, not just the calendar date.

Data Security & Reliability

Built for Industrial Environments

The JVSOL MBF Monitoring System is designed with operational reliability in mind.

Automatic Reconnection

If the PLC connection drops due to network issues, the application automatically attempts to reconnect without any user action

Continuous Logging

Data is written to the database immediately after each read — no data loss even if the web dashboard is not open

Local Database

MySQL runs on-site on the plant server — no cloud dependency, no internet required

Browser-Based Dashboard

No software installation needed on operator PCs — just open a browser and the live data appears

About JVSOL India Inc.

Industrial Automation Specialists

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

Our Expertise

- PLC integration and data acquisition (Siemens, Mitsubishi, Allen-Bradley)
- Custom SCADA and HMI development
- Web-based plant monitoring dashboards
- Automated reporting and data analytics

Our Approach

- We build systems that plant teams can actually use — simple interfaces, reliable operation, and no unnecessary complexity

Contact us to discuss your project requirements

MBF Monitoring & Data Acquisition System

THANKYOU

Contact Us

Email: mahaboob@jvsol.co.in

Website: www.jvsol.co.in

Phone: +91-7795345309, 9380905907

COMPANY NAME