



**ascent informatics**

An ISO 9001:2008 company

# PlantConnect<sup>®</sup> Presentation



[www.ascentautomation.com](http://www.ascentautomation.com)  
[www.aiplindia.com](http://www.aiplindia.com)

## About AIPL

A little bit about company...

PlantConnect®  
Overview

Features

Applications

Case Studies



## People

Our customers,  
employees and  
associates

## Processes

- ISO 9001:2008
- Process driven, but agile approach

## Products

Innovative IT  
solutions in

- Industrial Automation
- Logistics & Shipping
- Business Applications



- AIPL takes pride in its **business ethics and professionalism**
- Following qualities set us apart and they go much beyond technology -
  - Flexible and sensitive to client's needs
  - Easy to work with
  - Optimum Quality Management System certified by ISO
  - Resources continuity and retention
  - Involvement of top management in projects
  - Cost effective and great value for money



- Types of applications developed
  - Web based monitoring and control
  - Plug and play instrumentation platform
  - Data loggers / Data Acquisition Servers
  - Web enabling of hardware
  - SCADA
  - Device Drivers
  - Many more...



# Customers

Customer base in USA, Germany, UK, Switzerland, India etc.



## Our customers are saying...



**We are delighted to have been able to work with AIPL and strongly believe that their flawless execution was a key factor to our project success.**

- Director, Motion Business US & Asia, A Public Company in CA, USA

**We would absolutely recommend AIPL to other firms looking for a good partner, and would give them the highest recommendation.**

- Steve Drevik, CEO, Agilaire LLC

**Everyone at AIPL is proactive, flexible, energetic and capable to accept and meet new challenges.**

- Mahesh Washikar, CEO, FuturePath



About AIPL



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Web based platform  
for  
Monitoring & Control  
of  
Devices  
through  
Intranet / Internet



# Monitor



## Devices

- Same or different types of devices

## Location

- Located in a single or multiple plants (sites)

## Time and place

- Anytime (24x7)
- From anywhere

## Frequency

- Continuous OR Need-based



# Which Devices

## Devices fitted with a Controller / PLC / HMI



**Plastics m/c**  
**(Injection moulding,**  
**extruders)**



**Packaging m/c**  
**Test Beds**  
**Any PLC controlled m/c**



**Boilers**  
**Pumps**  
**Chillers**



**Other Devices**



**Gas Analyzers**  
**Weather Stations**



# Connect with Sensors

Connect directly with sensors through PlantConnect integration with **NATIONAL INSTRUMENTS™** H/W

**PlantConnect™**  
Online Remote Monitoring



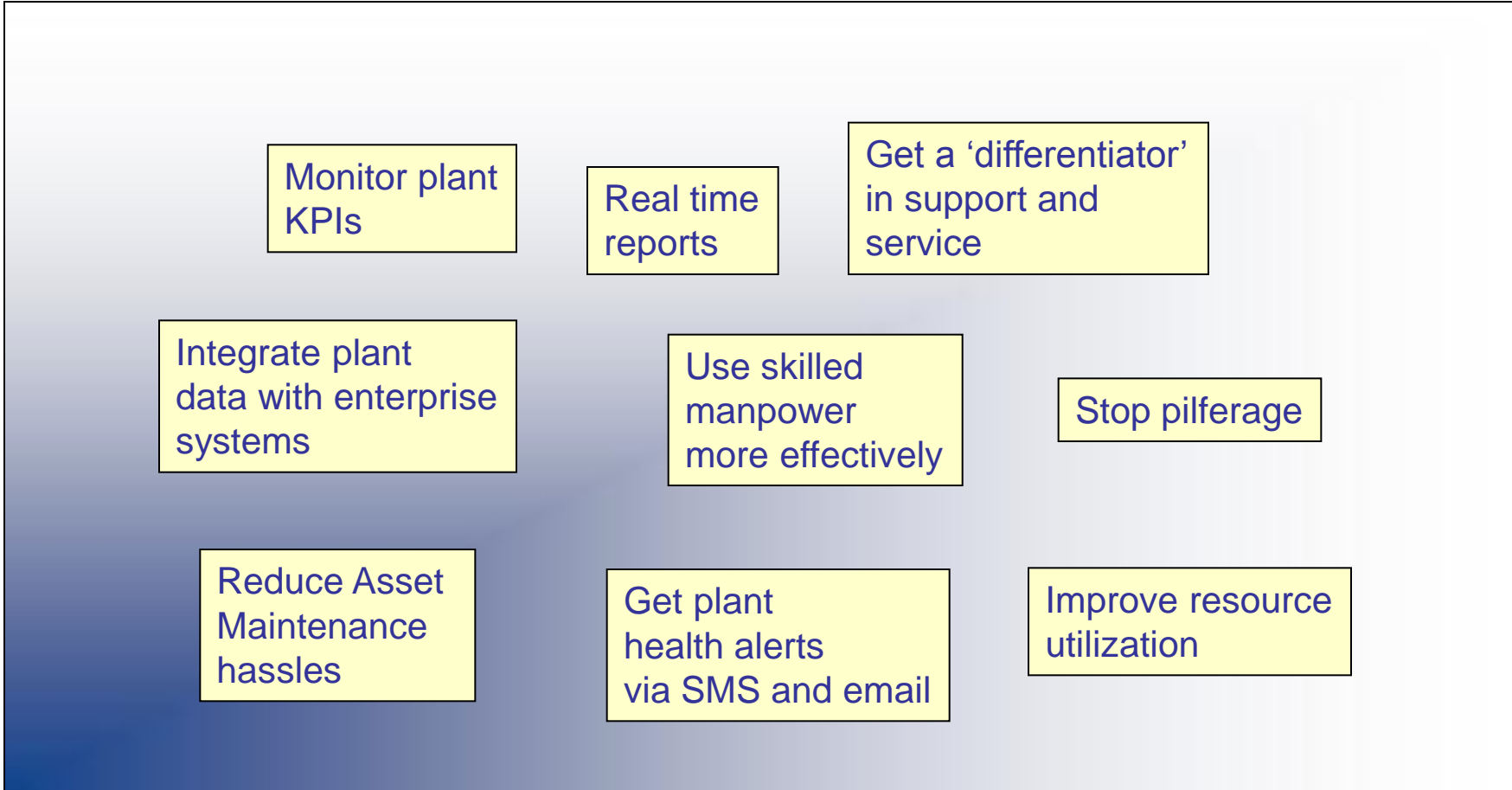
NI Compact DAQ



NI IO modules

- Current
- Voltage
- RTD
- Thermocouple
- Resistance
- Many more...

# Business Drivers

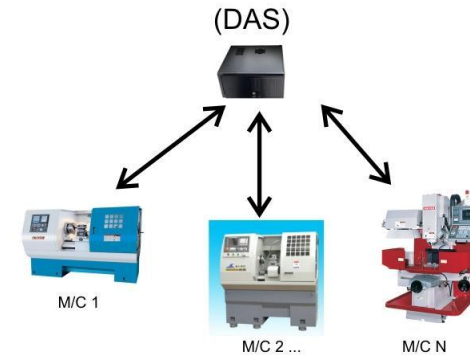


# Components



## Data Acquisition Server (DAS)

- Installed at each site
- Connects to devices, polls data and sends to PlantConnect server



## PlantConnect Server

- Web server located anywhere on internet / intranet
- Receives data from all DAS
- Provides functions to clients for real time monitoring, reporting, analysis

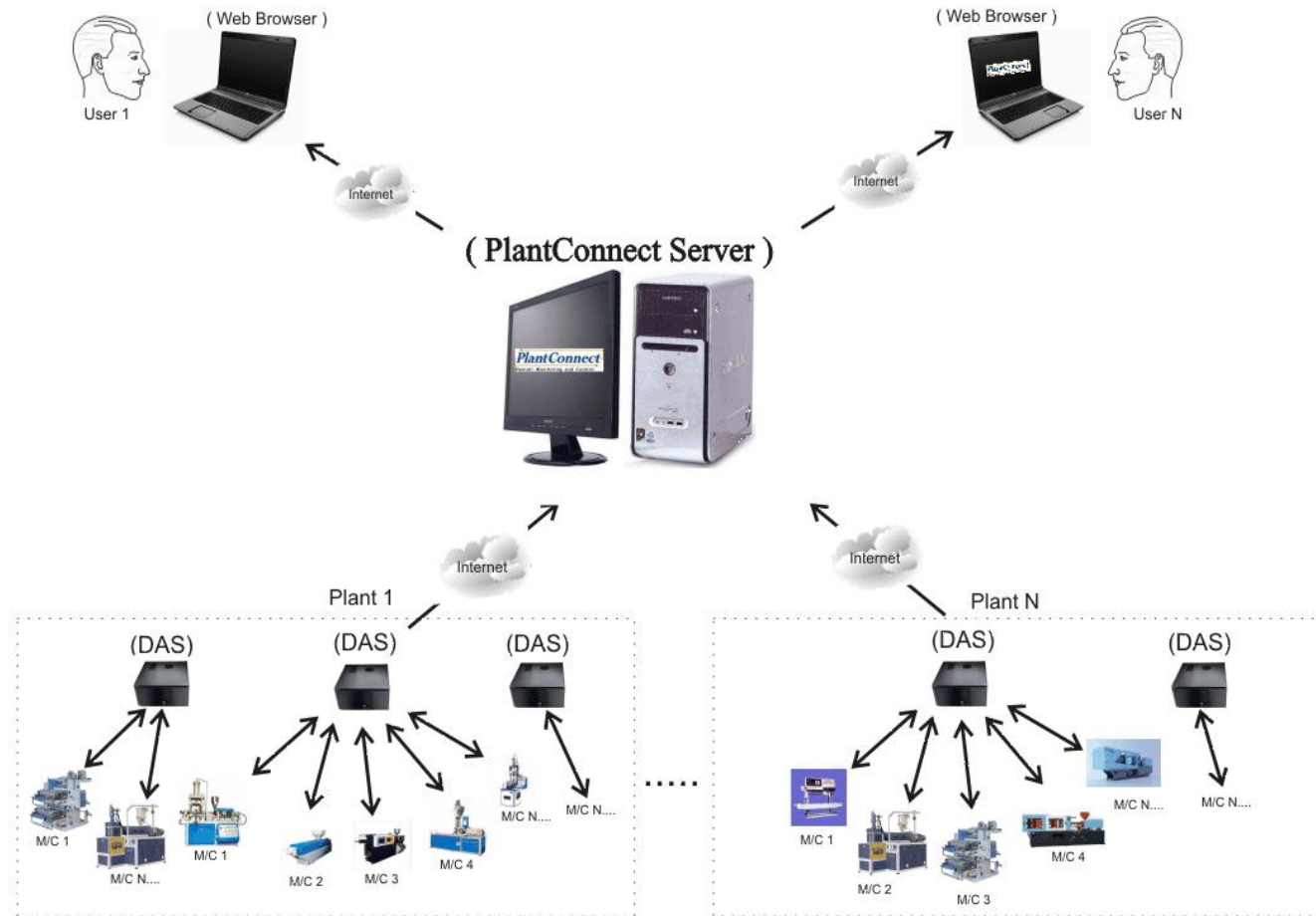


## Browser based client

- PC
- Tablet
- Mobile



# Deployment Diagram





Embedded  
DAS

- Using communication channel supported by device (Serial / Ethernet / USB)
- Using any protocol supported by device (e.g. OPC, Modbus)



Through TCP/IP using

3G USB modem



Broadband connection



LAN (if server on intranet)





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# Functional Modules



Visualization

Alarm Management

Historian

Asset Management and Maintenance

Data Analysis and Reporting

Integration

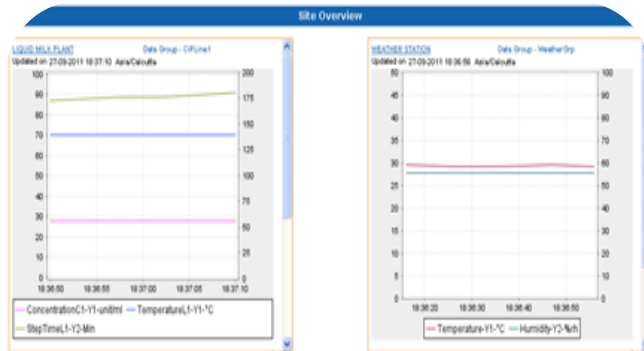
Configuration

# Visualization



Device Tree

- Hierarchical view of complete installation
- Device status icons



Dashboard

- Customizable dashboards for – Installation, Site and Device
- Set trends or mimic pages on dashboard
- Drill down to individual devices from the dashboard

# Visualization



## Online Data

- Real time data values
- Real time trends

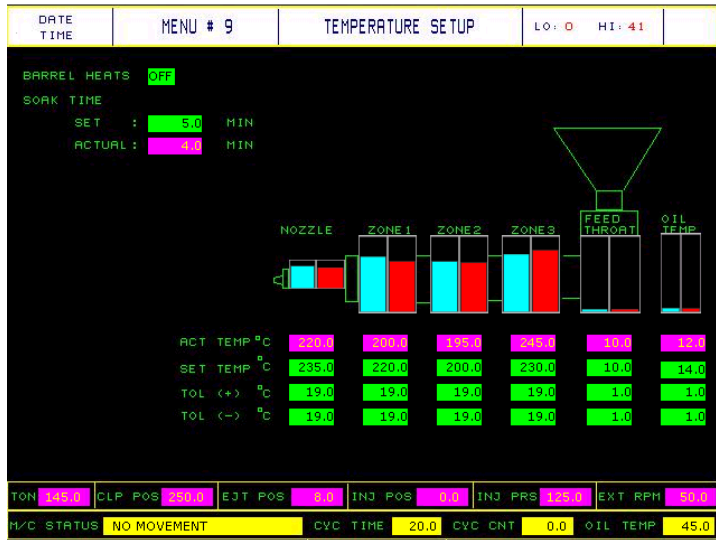


## Mobility

- Access PlantConnect from any mobile
- View device status and online data
- Get alarm alerts



# Mimic Pages



- Operator panel pages designed for each installation
- Can contain value fields, bar graphs, trends, static text, images

Previous Next

DATE TIME	MENU # 22	PROCESS DATA 1	LO: 0	HI: 41							
CYCLE TIME	FILL TIME	RECOV TIME	SLD FWD TIME	SLD RET TIME	X-FER POS	CUSHION POS	SHOT SIZE	HYDRAUL X-FER PRS	NOZZLE TEMP	ZONE 1 TEMP	
18.000	0.000	0.000	14.000	0.000	3.500	0.000	0.000	4.500	235.000	210.000	
19.878	9.474	9.474	14.000	0.000	3.500	0.000	0.000	4.500	235.000	210.000	
19.714	8.947	8.947	14.000	0.000	3.500	0.000	0.000	4.500	235.000	210.000	
19.592	7.895	7.895	14.000	0.000	3.500	0.000	0.000	4.500	235.000	210.000	
19.388	6.842	6.842	14.000	0.000	3.500	0.000	0.000	4.500	235.000	210.000	
19.184	5.789	5.789	14.000	0.000	3.500	0.000	0.000	4.500	235.000	210.000	
19.061	5.263	5.263	14.000	0.000	3.500	0.000	0.000	4.500	235.000	210.000	
18.898	4.737	4.737	14.000	0.000	3.500	0.000	0.000	4.500	235.000	210.000	
18.694	3.158	3.158	14.000	0.000	3.500	0.000	0.000	4.500	235.000	210.000	
18.531	2.632	2.632	14.000	0.000	3.500	0.000	0.000	4.500	235.000	210.000	
18.367	1.579	1.579	14.000	0.000	3.500	0.000	0.000	4.500	235.000	210.000	
18.245	1.053	1.053	14.000	0.000	3.500	0.000	0.000	4.500	235.000	210.000	
18.000	0.000	0.000	14.000	0.000	3.500	0.000	0.000	4.500	235.000	210.000	
19.878	9.474	9.474	14.000	0.000	3.500	0.000	0.000	4.500	235.000	210.000	
19.755	8.947	8.947	14.000	0.000	3.500	0.000	0.000	4.500	235.000	210.000	
19.510	7.895	7.895	14.000	0.000	3.500	0.000	0.000	4.500	235.000	210.000	
19.388	6.842	6.842	14.000	0.000	3.500	0.000	0.000	4.500	235.000	210.000	
TON	100.0	CLP POS	250.0	EJT POS	0.0	IND POS	0.0	INJ PRS	100.0	EXT RPM	100.0
M/C STATUS	NO MOVEMENT		CVC TIME	18.000	CVC CNT	161.000	OIL TEMP	45.000			

Previous Next

# Alarm Management



## Configure

- Configure limit based alarms for each parameter – high-high, high, low, low-low
- Configure device generated alarms

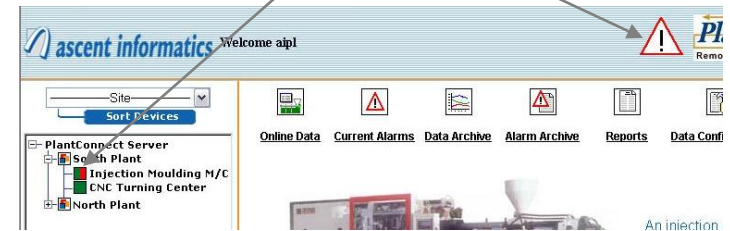
## Run time

- When any limits are crossed, alarms are generated by DAS
- Alarms generated by device are read

## Alert user

- Audio-visual display on client screen
- Send alarms and event alerts by SMS / email

## Alarm indication



n.	Date Time	Alarm Text
1	22-10-2009 16:59:34	HIHigh limit reached for Fill Time. HIHigh limit value = 5.0 current value = 5.12
2	22-10-2009 16:58:44	HIHigh limit reached for Fill Time. HIHigh limit value = 5.0 current value = 4.99
3	22-10-2009 16:56:26	HI limit reached for Transfer Cavity Pressure. High limit value = 20.0 current value = 20.156567
4	22-10-2009 16:57:08	Acknowledged By SuperUser - HIHigh limit reached for Tonnage. HIHigh limit value = 115.0 current value = 116.128181
5	22-10-2009 16:56:26	HI limit reached for Tonnage. High limit value = 110.0 current value = 116.128181

## Current Alarms Page



# Historian

Data Archive      Data Group - ProcessData      Show Trend

Injection Moulding M/C - ProcessData, From : 22-10-2009 17:30:25 To : 22-10-2009

Date Time	Recovery Time	Slide Forward Tl	Transfer Positio	Cushion Positio
22-10-2009 17:30:25	5.20	14.02	3.50	0.00
22-10-2009 17:30:31	5.20	14.02	3.50	0.00
22-10-2009 17:30:37	5.20	14.02	3.50	0.00
22-10-2009 17:30:43	5.20	14.02	3.50	0.00
22-10-2009 17:30:49	5.20	14.02	3.50	0.00
22-10-2009 17:30:55	5.20	14.02	3.50	0.00
22-10-2009 17:31:01	5.20	14.02	3.50	0.00
22-10-2009 17:31:07	5.20	14.02	3.50	0.00
22-10-2009 17:31:13	5.20	14.02	3.50	0.00
22-10-2009 17:31:19	5.20	14.02	3.50	0.00
22-10-2009 17:31:25	5.20	14.02	3.50	0.00
22-10-2009 17:31:31	5.20	14.02	3.50	0.00

## Data History

Select Date Range

Start Date Time: 22-10-2009 15:46:00

End Date Time: 22-10-2009 17:46:00

Select Data Groups

- GlobalVariables
- CycleData
- ProcessData

Submit

Trend Settings

Schedule

- View / print historical data values
- View / print historical trend
- Long term data storage

PLASTIC MOULDING      PlantConnect      Remote Monitoring and Control

Ferromatic plastic injection moulding machine

Alarm Archive

Start Date Time: 16-11-2011 10:41:41      End Date Time: 25-11-2011 12:41:41

Active      Acknowledged      Reset

No.	Date Time	Alarm Message
1	22-11-2011 03:44:14	WARNING! Zone 1 temperature is above limit. High limit value = 230.0 current value = 201.0
2	22-11-2011 03:44:12	WARNING! Zone 1 temperature is above limit. High limit value = 230.0 current value = 240.0
3	22-11-2011 07:37:35	WARNING! Zone 1 temperature is above limit. High limit value = 230.0 current value = 201.0
4	22-11-2011 07:07:21	WARNING! Zone 1 temperature is above limit. High limit value = 230.0 current value = 240.0
6	18-11-2011 03:36:30	WARNING! Zone 1 temperature is above limit. High limit value = 230.0 current value = 201.0
7	18-11-2011 03:06:25	WARNING! Zone 1 temperature is above limit. High limit value = 230.0 current value = 240.0
7	18-11-2011 07:33:46	WARNING! Zone 1 temperature is above limit. High limit value = 230.0 current value = 201.0
8	18-11-2011 07:03:44	WARNING! Zone 1 temperature is above limit. High limit value = 230.0 current value = 240.0
9	17-11-2011 11:31:47	WARNING! Zone 1 temperature is above limit. High limit value = 230.0 current value = 201.0
10	17-11-2011 11:01:44	WARNING! Zone 1 temperature is above limit. High limit value = 230.0 current value = 240.0
11	16-11-2011 15:20:38	WARNING! Zone 1 temperature is above limit. High limit value = 230.0 current value = 201.0
12	16-11-2011 14:00:30	WARNING! Zone 1 temperature is above limit. High limit value = 230.0 current value = 240.0

## Alarms History

- Alarms archive view / print

## Data Export

- Export data to CSV / SQL / Custom format
- Schedule data export



## Asset Management

- Define and manage asset attributes
- Track asset utilization

## Asset Maintenance

- Maintenance scheduling – periodic / just-in-time based on running hours
- Maintenance alerts
- Maintenance logging

## Maintenance Reports

- Asset Utilization Report
- Maintenance Logs



# Data Analysis & Reporting

**NTPC Limited**  
Anta Gas Power Project, Anta, Rajasthan  
Daily Environmental Report

30th Anniversary  
Powering Progress, Protecting People

Day : 6-1-2006

1. Wind Speed 1.926 kmph
2. Prevailing Wind Direction NE
3. Max Air Temperature Max 18.9 Deg. Cel. 06-01-2006 16:11
4. Min Air Temperature Min 0.0 Deg. Cel. 06-01-2006 14:17
5. Relative Humidity 54.097 %
6. Rainfall 9.0 mm
7. Net Radiation -23.959 w / m<sup>2</sup>

Station	Parameter	Avg µg/m <sup>3</sup>	Max µg/m <sup>3</sup>	Date and Time	Min µg/m <sup>3</sup>	Date and Time
1	NO	35.496	311.11	06-01-2006 06:07	-1.874	06-01-2006 15:15
2	NO <sub>2</sub>	13.491	61.448	06-01-2006 06:07	4.284	06-01-2006 13:45
3	NO <sub>x</sub>	53.866	372.55	06-01-2006 06:07	2.677	06-01-2006 15:15
4	SO <sub>2</sub>	1.697	4.287	06-01-2006 06:07	-0.573	06-01-2006 03:25

## Reports

- Standard as well as customized reports
- Automatic report scheduling and delivery as file, email, hard copy

CO Analyzer Device on line asset.

CO Analyzer Monitoring System

From : 10-02-2006 00:00:00 To : 12-02-2006 18:42:26

Charts

## Charts

- Trends
- Charts (X-Y chart, pie chart, bar chart etc.)

Vehicle Reception

RD Date Time: 11-10-2011 15:41:09

Vehicle No: MH12AD2646

Challan No: 123/1111

Supplier: Darnik Limited

Gross Wt: 6000

Tare Wt: 4500

Net Wt: 1500.00

Receptor Details

City (Rq): 1000

Fat%: 6

SFP%: 6.2

Variation Details

City (Rq): 850

Fat%: 6.8

SFP%: 6.8

Temperature (deg C): 0.2

Humidity (HtA): 0.58

Update Reset Back

## Data Entry Engine

- **Data entry engine** – Define and generate data entry screens, for manual data
- Any report / chart can contain manual as well as automatic data



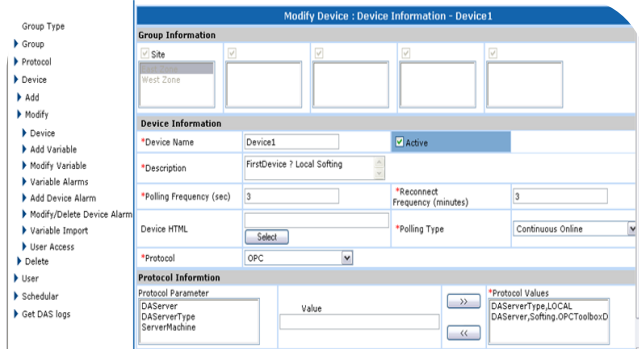
## Downward Integration

- **Get Data Interface**
- Integration with different data sources
- Devices / OPC HDA / SQL / Custom sources

## Upward Integration

- **Put Data Interface**
- Integration with Enterprise Applications
- Data stored as binary files / CSV files / SQL / XML / Custom format

# Configuration



## Configuration

- Extensive configuration tool to configure sites, devices, parameters, users etc
- Remote configurable DAS

## Access Control and Security

- User authentication – password + IP address
- Role based authorization
- Device – User matrix for access rights
- Secure data storage



Serial	Ethernet	USB
<ul style="list-style-type: none"><li>– Modbus RTU</li><li>– GSI – Generic Serial Interface</li><li>– FX2N – Mitsubishi PLC</li><li>– Selogica – Arburg machines</li><li>– MC3F – Krauss Mafai machines</li><li>– MC4 - Krauss Mafai machines</li><li>– Fanuc CNC Controllers</li><li>– TAPI – TAPI gas analyzers</li><li>– MetOne – MetOne analyzers</li><li>– Eco Physics gas analyzers</li><li>– Bayren Hessen protocol (Horiba gas analyzers)</li></ul>	<ul style="list-style-type: none"><li>– OPC DA</li><li>– OPC HDA</li><li>– OPC AE</li><li>– Modbus TCP</li><li>– DDE</li><li>– Euromap 63</li></ul>	<ul style="list-style-type: none"><li>– NI Compact DAQ</li></ul>



About AIPL

PlantConnect®  
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Features



Applications

Case Studies



- Scenarios
  - Monitor multiple devices centrally
  - Monitor multiple factories from head office
- Advantages
  - Accurate and real time reporting
  - Define and monitor Key Performance Indices (KPIs)
  - Data analysis
  - Push data into ERP
  - Maintenance management



- Scenarios
  - Device manufacturer uses PlantConnect for support and maintenance of devices installed on customer sites
- Advantages
  - Remote troubleshooting
  - Maintenance management
  - Premium service to customer
  - Saving in support costs and time



- Web based Air Quality Monitoring System
- Applications
  - Ambient Air Quality Monitoring
  - Stack Monitoring
- Connectivity to gas analyzers, SPM analyzers, weather stations from various manufacturers
- Easy access for authorized users thru a standard browser
- Comprehensive charts and reports

*Compliant with Indian Environment Ministry Notification of Apr 2011*



## Device drivers

Device drivers available for various gas analyzers –

- Teledyne API
- Met One
- Eco Physics
- Horiba (Bayren Hessen Protocol)
- Others developed on request
- Other standard drivers like OPC, Modbus, GSI also available



- Scenario
  - PlantConnect is used for acquiring data from devices on one or more sites and generating MIS reports
- Advantages
  - Real time reporting
  - Multiple users can generate/view reports
  - Can schedule automatic report generation
  - Report printing, saving, distribution by email



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- Project implemented by Plexpert GmbH ([www.plexpert.de](http://www.plexpert.de))
- Client – MHR Kunststofftechnik GmbH, Company manufacturing industrial plastic products
- Central monitoring of Krauss Mafai injection moulding machines
- Objectives
  - Productivity increase
  - Improve parts quality
  - Reduce rejection
- Methodology
  - Central monitoring
  - Data Analysis

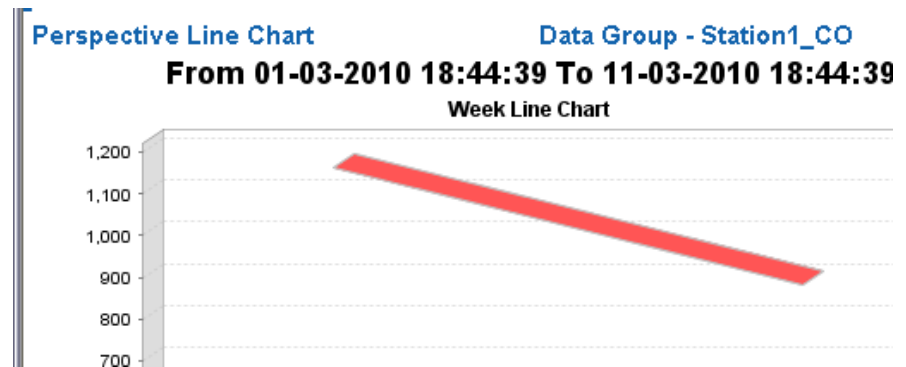
The screenshot shows the PlantConnect web interface for machine MA6\_700. The interface includes a navigation menu with options like 'Aktuelle Daten', 'Aktuelle Alarmer', 'Daten Archiv', 'Alarm Archiv', and 'Daten Konfiguration'. The main content area displays 'Online Daten' for the data group 'Temperaturen1'. A table shows the following data:

Nr.	Variable	Einheit	Wert
1	Zylindertemp1		198,70
2	Zylindertemp2		213,80
3	Zylindertemp3		219,90
4	Zylindertemp4		0,00
5	DuesenHZone		210,00
6	Shmelzetemp		err

The interface also shows 'Aktualisiert für 16-02-2010 08:43:24 Europe-Berlin' and a 'Trend an' button. On the right side, there are buttons for 'Datengruppen', 'Temperaturen1', and 'Drucken'.



- National Thermal Power Corporation, Anta, India – A gas based power plant
- Monitoring 4 stations –
  - Gas and SPM analyzers
  - Weather data logger
- Objectives
  - Air Quality Monitoring
  - Real time trends and charts like wind rose, frequency distribution
  - Generation of statutory reports – automatic time based report generation + report generation on user request
  - Alarm and events alert



OnLine Parameter Data

Parameter	Range	Unit	Central Station		Station1		Station2
			Time Stamp	Value	Time Stamp	Value	Time Stamp
Wind Speed	0.0 to 324.0	kmph	2010-04-01 11:50:33	7.92			
Wind Direction	0.0 to 359.0	deg	2010-04-01 11:50:33	354			
Air Temperature	0.0 to 50.0	Deg Cel	2010-04-01 11:50:33	36.79			
Relative Humidity	0.0 to 100.0	%	2010-04-01 11:50:33	25.2			
Rainfall	0.0 to 1000.0	mm	2010-04-01 11:50:33	0			
Net. Radiation	0.0 to 1700.0	mv	2010-04-01 11:50:33	5.51			
CO	0.0 to 1500.0	microg/m3			2010-04-01 11:51:09	1163.81	2010-04-01 11:39:26
SO2	0.0 to 500.0	microg/m3			2010-04-01 11:48:13	26	2010-04-01 11:38:22
NO	0.0 to 500.0	microg/m3			2010-04-01 11:47:59	1.2	2010-04-01 11:30:39
NO2	0.0 to 500.0	microg/m3			2010-04-01 11:47:59	0.8	2010-04-01 11:30:39
NOX	0.0 to 500.0	microg/m3			2010-04-01 11:47:59	2	2010-04-01 11:30:39
SPM	0.0 to 250.0	microg/m3			2010-04-01 11:47:45	279	2010-04-01 11:30:38
Stn Temp	0.0 to 50.0	Deg Cel			2010-04-01 11:47:05	38.7	2010-04-01 11:30:46

# MIS Reporting



- A Dairy in Gujarath, India
- Connected to 7 devices
  - DCS for milk plant
  - DCS for refrigeration plant
  - Milko scan - 2
  - Titrator - 2
  - Weigh bridge
- Objectives
  - Real time reporting
  - 38 reports
  - 9 data entry screens
  - Maintenance alerts

LOGO

LIQUID MILK PLANT  
 SABARKANTHA DISTRICT CO-OPERATIVE MILK PRODUCER'S UNION LTD. HIMMATNAGAR  
 CREAM PASTEURIZER REPORT

Start Date: 14/01/2012 09:20:07

End Date: 14/01/2012 19:20:07

Sr. No.	Source	Destination	Start Date & Time	End Date & Time	Transferred Quantity	Pasteurization Temp.		IDLE TIME (HOUR)	RUNNING TIME (HOUR)
						Heating Temp.	Cooling Temp.		
1	MPL1	PMST1	14/01/2012 12:11:14	14/01/2012 12:14:33	2500.0	6.1	6.1	5.36	4.23
2	MPL1	PMST1	14/01/2012 12:27:03	14/01/2012 12:27:38	3500.0	9.3	9.3	5.36	4.23
3	MPL1	PMST1	14/01/2012 12:29:43	14/01/2012 12:30:17	3500.0	6.9	6.9	5.36	4.23
4	PMST1	PMST2	14/01/2012 12:37:36	14/01/2012 12:38:03	3500.0	6.1	6.1	5.36	4.23
5	PMST1	PMST2	14/01/2012 12:40:39	14/01/2012 12:41:26	3500.0	9.1	9.1	5.36	4.23
6	PMST1	PMST2	14/01/2012 13:36:07	14/01/2012 13:36:50	3500.0	5.0	5.0	5.36	4.23
<b>Total</b>					<b>20000.0</b>				

Start Date: 14/01/2012 10:31:42

End Date: 14/01/2012 19:31:42

Sr. No.	Source	Destination	Start Date & Time	End Date & Time	Transferred Quantity	Pasteurization Temp.		Total Power Saving (KW) Cream Chiller B1PHE03	IDLE TIME (HOUR)	RUNNING TIME (HOUR)	Remarks
						Heating Temp.	Cooling Temp.				
1	PMST1	PMST2	14/01/2012 11:59:20	14/01/2012 12:02:19	5000.0	9.8	9.8	1000.0	6.13	2.46	This is Milk Past-1 data on 14 Jan 2012.
2	PMST1	PMST2	14/01/2012 12:02:59	14/01/2012 12:04:05	5500.0	8.7	8.7	2500.0	6.13	2.46	This is Milk Past-1 data on 14 Jan 2012.
<b>Total</b>					<b>10500.0</b>						



# Thank You!

Please tell us about your requirements

Write to Sujata Tilak [sujata.tilak@aiplindia.com](mailto:sujata.tilak@aiplindia.com)

Or call us at +91 20 6500 4608

Send us a request for Demo

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