Assembly Line
iWorkstation Solution
Real-time Data Acquisition and Visualization for Assembly Operation Optimization

SRP-IFS300
It’s tough to make a buck in manufacturing today while products are increasingly complex and require more assembly steps. Advantech offers assembly line monitoring solutions with a simple IoT architecture to improve the assembly operation. In addition to collecting data from the assembly process, the solutions also enable data analysis and visualization, as well as integrate with WISE-PaaS platform for industrial APP applications. The factory managers can be in full control of all the details happening on the line for real-time management to optimize assembly operations.

**System Introduction**

**Work Order Status**
- WIP Information
- Accumulated Production Quantity
- Production Yield Rate
- Error/Warning Messages

**Performance Management**
- Abnormality Index
- Abnormality Analysis
- KPI Status
- Incident Records of Work Orders

**Trend Report**
- Monthly Work Order Completion Rate
- Monthly Production Yield Rate
- Monthly Production Efficiency
- Monthly Management Indicators
Assembly Dashboard
- Assembly Line Information
- Work Order Completion Rate
- Production Yield Rate
- Production Efficiency

ESD Status
- ESD Personnel Anti-static Detection
- Abnormal Alarm
- ESD Report Management
**Software Diagram**

**iWorkstation Management Features**
- Assembly information
- Foolproof mechanism
- Schedule flexibility adjustment
- Complete workorder review
- MES/PLM information for SOP
- Real-time ESD monitoring

<table>
<thead>
<tr>
<th>Feature</th>
<th>Unit Price</th>
<th>Number of Employees</th>
<th>Standard Working Hours</th>
<th>Work Orders</th>
<th>Consumer Complaint Reports</th>
</tr>
</thead>
</table>

**WISE-PaaS/EnSaaS**
- Data Infrastructure
  - WISE-PaaS Data Services
  - Database Management
  - MongoDB
  - PostgreSQL
  - influxd
  - IoT Hub
  - RabbitMQ

**Customer Management**
- Multi-tenancy
- Billing & Metering
- Single Sign-on

**Node-RED**
- Visualization – Dashboard Data Infrastructure
- Data Intelligent Framework
  - Data buffer
  - Store and forward
  - Data interface

**Edge Intelligence**
- WebAccess/SCADA
- Field Operation Management
  - Production quantity collection
  - Working time
  - Quality monitoring
  - Working methods

**System Diagram**

**Central Management**
- iFactory
- SRP-IFS310 eSOP Server System

**Edge Computing**
- Assembly Line Efficiency Monitoring System SRP-IFS320
- Electrostatic Discharge Monitoring System SRP-IFS330
- WebAccess/SCADA

**Field Site**
- Assembly Control and Data Acquisition SRP-IFS321
- Electrostatic Discharge Acquisition Module MTD-T012
- Gateway ADAM-4570
- Electrostatic Discharge (ESD)
- eSOP Client System SRP-IFS312
- Electronic SOP (eSOP)

**iWorkstation Management System**
- System Diagram
- Industrial APPs (SRPs)

**PaaS**
- Compute Resource Management
- CLOUDFOUNDRY
- Micro-services
- Elastics Scaling
- High Availability

**RESTful API**
- Modbus

**Node-RED**
- Private Cloud Infrastructure
- openstack

**Visualization – Dashboard**
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**Field Operation Management**
- Production quantity collection
- Working time
- Quality monitoring
- Working methods

**Dashboard Player**
- UNO-2272G
- Electrostatic Discharge Monitoring System SRP-IFS330
- Central Management

**Assembly Line Efficiency Monitoring System**
- SRP-IFS320
- Assembly Line Monitoring

**Electrostatic Discharge Monitoring System**
- SRP-IFS330
- Electrostatic Discharge (ESD)

**Gateway**
- ADAM-4570

**Assembly Control and Data Acquisition**
- SRP-IFS321

**Electrostatic Discharge Acquisition Module**
- MTD-T012

**Electrostatic Discharge Monitoring System**
- SRP-IFS330

**WebAccess/SCADA**
- Assembly Line Efficiency Monitoring System SRP-IFS320
- Electrostatic Discharge Monitoring System SRP-IFS330
- WebAccess/SCADA

**eSOP Client System**
- SRP-IFS312
- Electronic SOP (eSOP)
Feature Highlights

Assembly Workstation Management
The solution allows workstation data to be collected, analyzed and visualized as all kinds of assembly line information and key performance indicators for managers to optimize assembly operations.

Automated eSOP Management
SOPs are easily mismanaged under manual paper-based processes. The automated eSOP system solves the shortcomings of prior approach by scanning barcode to have the lasted SOP e-documents.

ESD Real-time Monitoring
The ESD monitoring system alerts immediately if there is any disconnect from the operator to ground, thereby shortening the corrective action loop and controlling the ESD environment.

Industrial Applications

Computer Industry
- Computer manufacturers are constantly looking for new ways to improve workplace efficiency.
- Enabled data visualization management of the assembly line information for optimizing operation efficiency.

Communication Products
- Mobile phone and communication manufacturing expects productivity improvement and quality control of manual assembly lines.
- Ensured product quality and improved on-time deliveries of products and services.

Consumer Electronics & Appliances
- Very often consumer electronics and household appliance manufacturers need abundant labor force for their assembly lines.
- Reduced labour costs by eliminating wasted time and improving process flow.

Automotive Assembly
- The automotive industry requires highly flexible and changeable assembly systems to increase productivity.
- Improved automotive assembly reliability and quality with long-term stable operation.
## Ordering Information

<table>
<thead>
<tr>
<th>Solution Package</th>
<th>Details</th>
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<tbody>
<tr>
<td><strong>WISE-PaaS Situation Room</strong>&lt;br&gt;SRP-SR-100-BTO</td>
<td>LCD Wall: 86&quot; x 1 + 55&quot; x 2&lt;br&gt;Server and Display: DS-980 x 1&lt;br&gt;Control Panel: UTC-520 x 1&lt;br&gt;WISE-PaaS/SignageCMS x 1</td>
</tr>
<tr>
<td><strong>WISE-PaaS VIP Membership</strong>&lt;br&gt;98DPWAP2K</td>
<td>WISE Point: 2,000 Points</td>
</tr>
<tr>
<td><strong>SRP-IFS310</strong>&lt;br&gt;Electronic SOP Server System</td>
<td>IPC-610 x 1&lt;br&gt;Windows Server 2016 R2&lt;br&gt;eSOP Server System</td>
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<tr>
<td><strong>SRP-IFS312</strong>&lt;br&gt;Electronic SOP Client System</td>
<td>UNO-2272G x 1&lt;br&gt;Windows Embedded 7 Pro&lt;br&gt;eSOP Client Service APP</td>
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<td><strong>SRP-IFS320</strong>&lt;br&gt;Assembly Line Efficiency Monitoring System</td>
<td>TPC-1551T x 1&lt;br&gt;Windows Embedded 7 Pro&lt;br&gt;ALM Service APP</td>
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<tr>
<td><strong>SRP-IFS321</strong>&lt;br&gt;Assembly Control and Data Acquisition</td>
<td>ADAM-3880-AE x 1&lt;br&gt;Screwdriver x 1</td>
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<tr>
<td><strong>SRP-IFS330</strong>&lt;br&gt;Electrostatic Discharge Monitoring System</td>
<td>TPC-1551T x 1&lt;br&gt;Windows Embedded 7 Pro&lt;br&gt;WebAccess/SCADA 300 tags&lt;br&gt;ADAM-4570 x 1&lt;br&gt;MTD-T012 x 1&lt;br&gt;Electrostatic Discharge Acquisition Module</td>
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