

- Controller
- Communication
- Remote I/O
- Sensor

09 M-701X series <i>BEST</i>  Analog Input Module with High Voltage Protection	14 M-708X series <i>BEST</i>  Counter / Frequency Encoder Input Module	17 DL-303 <i>BEST</i>  CO/CO2/Temperature Humidity / Dew Point Data Logger
10 ACS-11-MF  Access Control Reader with Proximity Card and Keypad (Support Modbus)	I-7561U  USB to Isolated RS-232/422/485 Converter	18 PM-3133 <i>BEST</i>  3-Phase Smart Power Meter
11 ZT-2055  Wireless 8-Channel Isolated DI and 8-Channel Isolated DO Module	PET-7H16M <i>HOT</i>  Ethernet High Speed Data Acquisition Module for Voltage, Current, Temperature, Strain Gauge, Vibration	19 PM-4324A  Multi-Circuit Smart Power Meter (60V,100V,200V,300V)
12 SL-P6R1-WF <i>HOT</i>  Single Stack Light Monitoring Module (WiFi)	15 DL-10  RS-485 Remote Temperature and Humidity Sensor	20 iWSN-1110X-160  Wireless Sensing Module
13 iKAN-116  iKAN Series-Industrial Modbus LED Display	16 DL-100 series  IP 66 Remote Temperature and Humidity Data Logger with LCD Display	iSN-101/DIN <i>HOT</i>  Liquids Leak Detection Module

Your Partner Toward Industry 4.0

ICP DAS was established in 1993 and strongly focuses on innovation and the enhancement of industrial automation technology. ICP DAS continuously endeavors to develop a comprehensive selection of products ranging from remote I/O controllers, distributed I/O modules, I/O data acquisition boards, programmable automation controllers, industrial communication modules, web-related products, motion control systems, SCADA/HMI software to automation solutions for applications critical to IIOT, Industry 4.0, energy management, motion automation, smart factories, intelligent buildings and smart cities.

Our ambition is to provide a wide range of high-quality products and versatile applications, together with prompt and efficient services, that can be implemented to assist in the continued success of our clients worldwide. In addition to our close cooperation with worldwide distributors, ICP DAS has made strong partnerships with those clients who have domain knowledge.

We integrate the expertise of our clients with our ability for customization to offer products and services in line with needs. ICP DAS helps our customers to achieve success and that is both our goal and our passion.



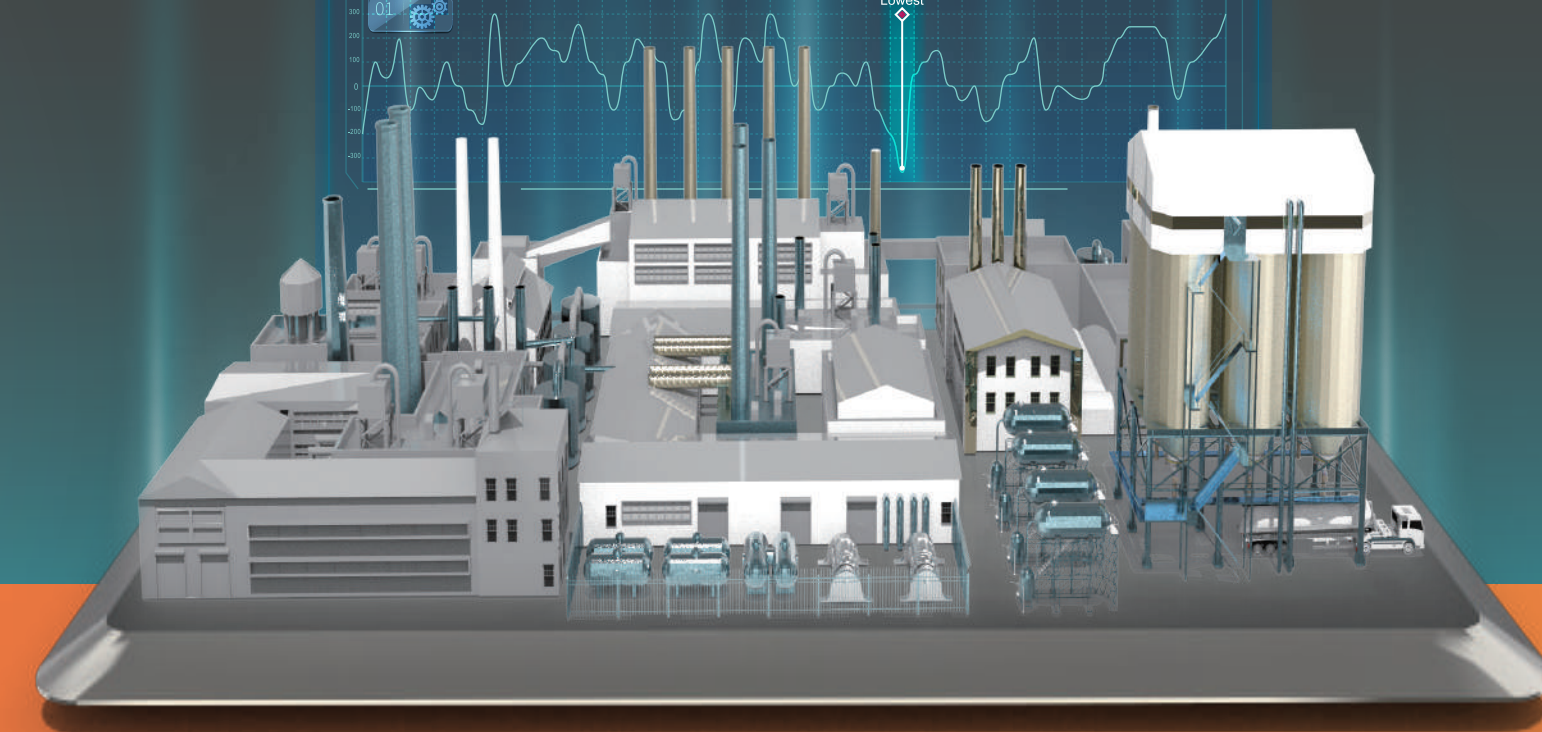
Industrial Computer Products and Data Acquisition Systems



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IIoT Industry4.0



Create Your Smart Factory
 With Key Data Integration & IoT Cloud Solution

Product Highlights

01 WISE-5231 <i>HOT</i>  IIoT Edge Controller	06 MDC-700 series <i>HOT</i>  Modbus Data Concentrator	UA-5231 <i>HOT</i>  IIoT Communication Gateway
02 PMC-5231 <i>HOT</i>  Industrial IoT Power Meter Concentrator	07 iWSN-2200  Wireless Data Concentrator	HRT-700 series <i>BEST</i>  HART to Modbus Gateway
03 LP-9221  Linux Based PAC	08 ZT-2570/2571  Industrial Zigbee Wireless Communication	GRP-540M series  4G / LTE NB-IoT Gateway
04 PMD-4201  Industrial IoT Power Meter Concentrator with 10.4" Touch Panel	LRA-900 series  Modbus RTU / TCP to LoRa Radio Modem	tGW-715 <i>BEST</i>  Serial to Ethernet Tiny Gateway
05 TPD series <i>BEST</i>  Touch HMI Device (2.8" / 4.3" / 7")	ECAT-2610  EtherCAT to Modbus RTU Gateway (RoHS)	tSH-734  Tiny Serial Port Sharer

Industry 4.0 with IIoT Technology



Collecting, connecting and integrating field site data to the Cloud to empower the availability of data wherever and whenever needed is the fundamental implementation to smart factories.

By IIoT technology, see how ICP DAS helps you step forward to the journey of your Industry 4.0.



Predictive Maintenance

The critical goal of predictive maintenance is to reduce maintenance cost, and increase the reliability of the product. To achieve this goal, you may consider:

1. To measure and record the **power consumption** data for every machine, which can then be compared with the yield for the same period and identify a baseline as a goal for future improvement.
2. To monitor vital components in a machine, such as motors, bearings, valves, pumps and heater. It can be determined whether the **temperature** has increased, the **current performance** has changed, or if there is any variation in **vibration frequency**. Once any abnormal issue has been identified, rather than regular maintenance, we can easily issue an alarm and perform maintenance before the issue damages the machine.



Industrial Safety

Industrial safety is generally related to personal safety and it is always a top-down policy designed to prevent occupational injuries and disasters.

Here are some applications where industrial safety is important:

1. To monitor the temperature of the electromechanical control panel to determine whether there is a short circuit in the cable or if it is smoldering, in order to prevent a fire.
2. To implement monitoring systems for Volatile Organic Compounds, personnel incapacitation detection, and personnel location detection...etc.

If an emergency occurs, any alarms and messages should be sent directly to the control center without any delay. Communication technology is highly critical at this point, so all essential monitoring systems should be connected to enable staff members to conduct immediate response and disposal.

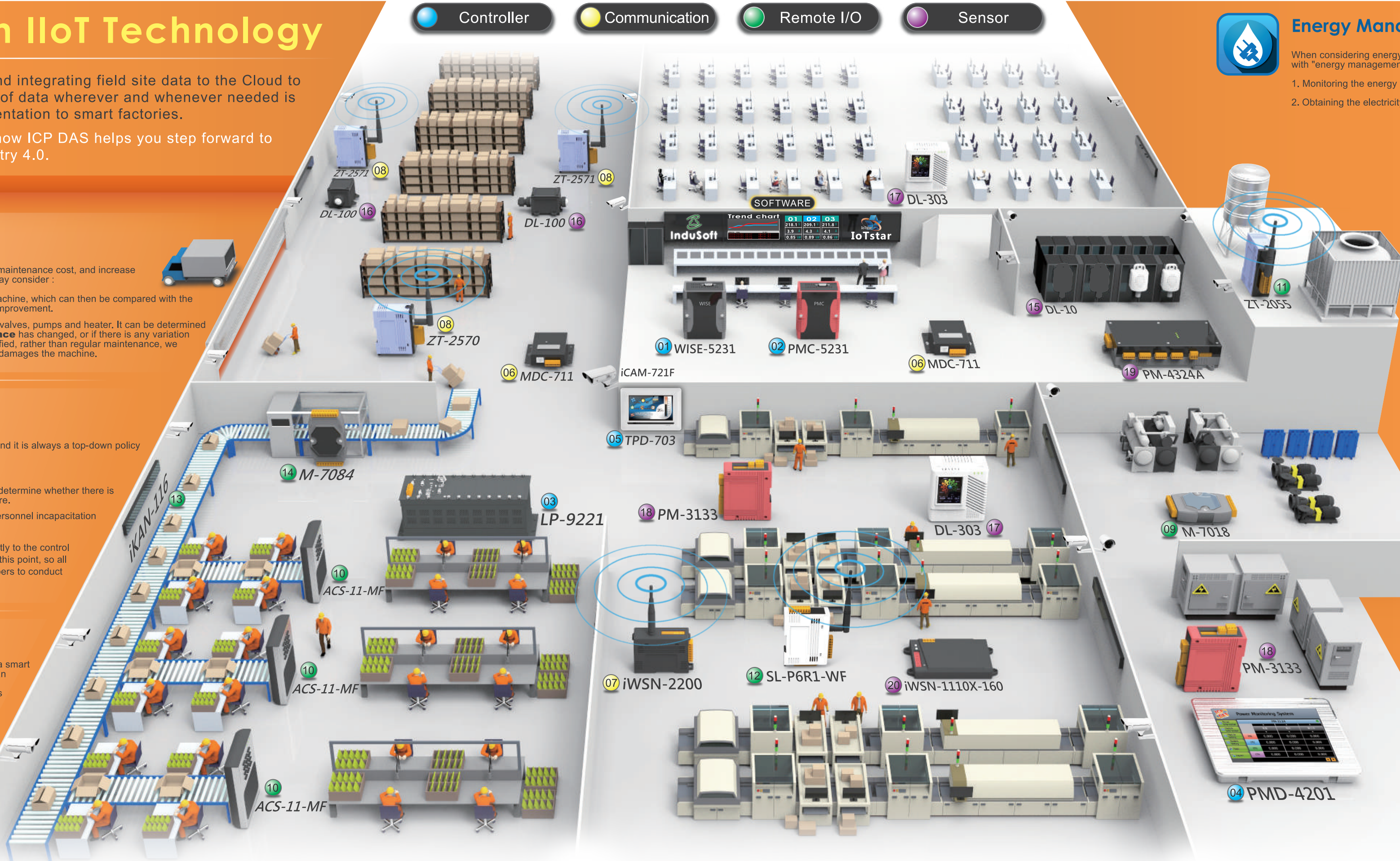


Environmental Monitoring

One of the critical systems that is easy to implement in a smart factory is an environmental monitoring system, which can be applied to any industry to improve the comfort of the environment, to prevent potential environmental hazards or personal danger, and to reduce the risk of property damage.

For example:

1. **In public areas:** an emergency button and alarm system, as well as an emergency lighting system.
2. **In production line and warehouse:** temperature, humidity, air quality, HVAC and water / gas leakage monitoring.
3. **In laboratory and data center:** an access control system.
4. **In factory:** a guard patrol and an inspection system.



Energy Management

When considering energy solutions, ICP DAS emphasizes "the acquisition of electricity information" together with "energy management", which is critical to:

1. Monitoring the energy conversion efficiency of power generation systems such as wind power and solar energy.
2. Obtaining the electricity information for a factory:

- Monitoring the **substation transformer** in the plant to ensure safety.
- Determining whether the **energy conversion efficiency** matches the balance of the power factor, which is a key element related to electricity charges.
- Understanding the **power quality**, where one of the crucial indexes related to the power quality is the harmonics. If the harmonics generate an impact on the power system, damage can be caused to the electrical devices.
- **Acquisition and classification of electricity information** and the status of each circuit, such as the monitoring of production equipment, motors, pumps, air conditioners, air compressors, heating equipment, and lighting...etc.

The obtained electricity data could be integrated with MES and ERP systems to calculate the unit cost of the electricity on equipment, which can also be further used as a reference to initiate process improvement and predictive maintenance.



Overall Equipment Effectiveness

$$OEE = \frac{A}{100} \times \frac{P}{100} \times \frac{Q}{100}$$

Availability Performance Quality

Overall Equipment Effectiveness (OEE) is one of the first steps in making your factory compliant with Industry 4.0 goals.

OEE considers the overall effectiveness of the equipment, and is a gold standard for improving manufacturing productivity.

For example:

1. To monitor the status of the stack light, machine status and cumulative use time for availability.
2. To collect data such as output amounts to determine machine performance.
3. To measure the RPM of the motor and the power consumption and the temperature parameters of the machine for production quality.

That the decision about whether the machine is permitted to start or produce a certain products, is all based on the recipe recommended by the MES system together with the production order from the ERP system.

The parameter setting for the temperature controller plays the most critical role in the machine recipe. To prevent incorrect parameters being set by the operators, a machine operation authorization and an automatic error notification system could help supervisors track and manage any difficulties should any abnormal operation occur.



Traceability

A traceability system is a crucial element for food safety, and is most required in the food and beverage industry, playing a significant role in the design and implementation of animal breeding, slaughtering, and in food processing.

InduSoft Web Studio offers tools to meet the requirements of FDA 21 CFR Part 11, such as:

1. Electronic Records (Event Logger, Alarms, Reports)
2. Electronic Signatures (Security System)

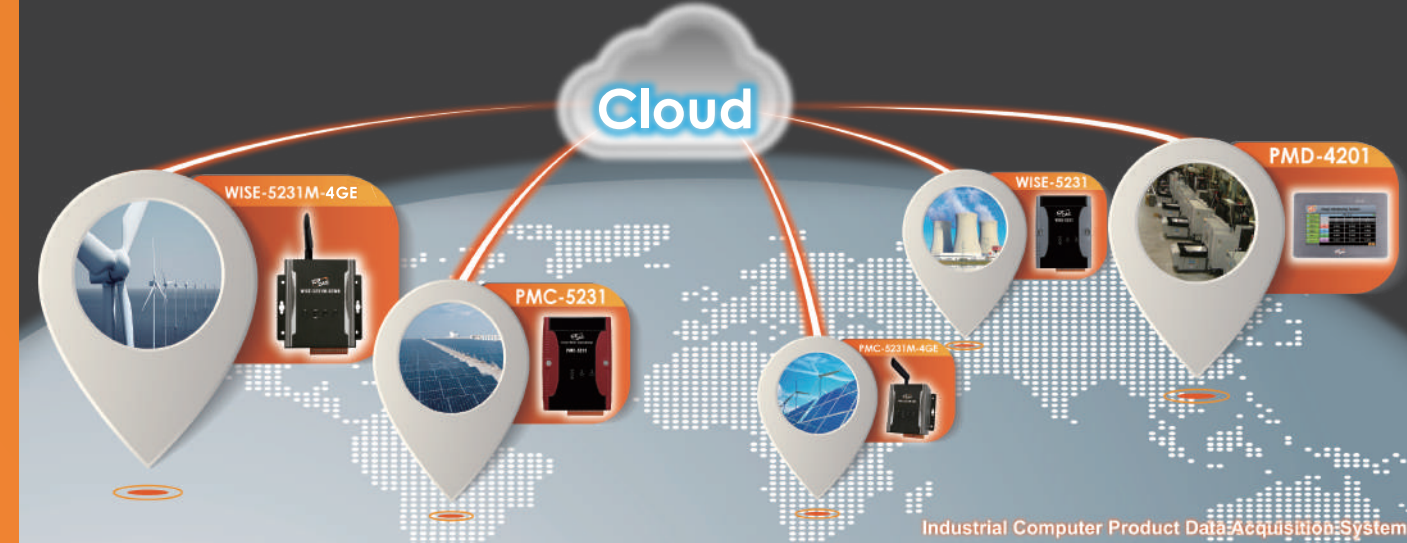
Better monitoring not only makes it easier to adhere to regulatory standards, but also saves time and human resources, allowing plant managers to track machine performance and perform preventative maintenance before any problems occur.



IoTstar is a software for use in remote monitoring and management of the PMC/WISE controllers in a variety of industrial applications. IoTstar offers a user-friendly and intuitive web interface that allows users to implement system settings and monitoring on the remote controllers by a few clicks; no more programming.

Key features:

1. Remote maintenance and device management.
2. Support advanced Web User Interface (WUI).
3. Support two-way interaction and real-time notification App.
4. Support historical and real-time databases importing and retrieving.
5. Flexible installation on Windows systems or Public Cloud (Microsoft, IBM or Amazon...etc.).



InduSoft Web Studio is a powerful, integrated collection of automation tools that includes all the building blocks needed to develop modern HMI, SCADA systems, and embedded instrumentation and control applications. Utilize InduSoft integrated Web technologies to take advantages of Internet / Intranet connectivity.

1. Easy integration, with PLCs and protocols; support unlimited drivers.
2. Support OPC UA / DA Server & Client.
3. Support IE browser and mobile devices remote access.
4. Support built-in language for math function and VBScript.
5. Combine over 1,000 animated objects to create any functionality required.
6. Connect to popular SQL databases (Microsoft SQL, MySQL, Sybase, Oracle).
7. Tools for traceability application and e-signatures, which is FDA compliance.
8. Provide a variety of templates: Andon, OEE, PackML, and Business Intelligence dashboards.
9. Support Windows CE, Windows Embedded, Linux, VxWorks, Windows 7/8/10, Server 2012/2016 editions.



CONTROL CENTER