

# IoT Cloud Management Software - IoTstar



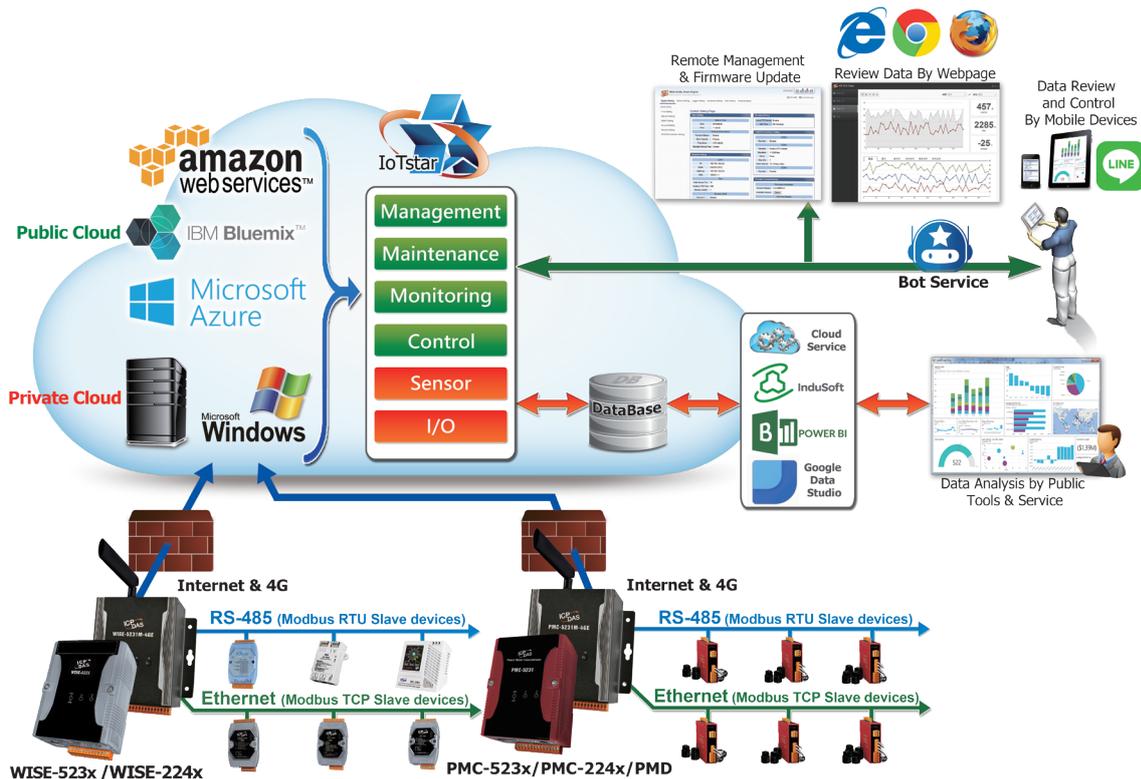
Build your IoT with ICP DAS IoTstar

## Introduction

IoTstar is a software developed by ICP DAS for use in remote monitoring and management of the WISE/PMC/PMD controllers in a variety of Industrial IoT applications. IoTstar can be installed on a general PC platform and works as a Private Cloud management system for the WISE/PMC/PMD controllers, or on the VM (Virtual Machine) platform of Microsoft Azure, IBM Bluemix or Amazon AWS, etc. and works as a Public Cloud management system for the WISE/PMC/PMD controllers. In addition to providing remote maintenance and firmware update services on the WISE/PMC/PMD controllers, IoTstar can also collect the I/O channel data and power data from the I/O modules (or Sensor) and Power Meter connected to the WISE/PMC/PMD, and then import these data into the Database to provide the services such as status query and display on the automation control and monitoring system in the Cloud environment.

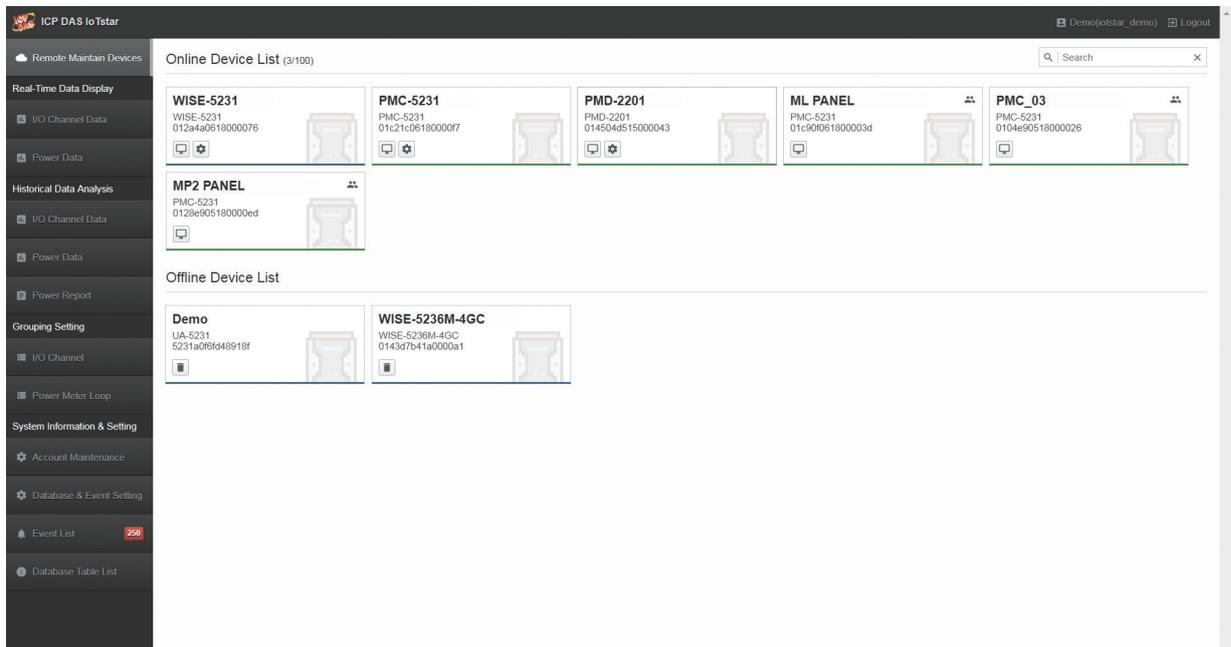
With IoTstar, users can complete the system setting only by a few clicks on Web page, and perform the Remote Access (Status Monitoring, System Setting, and Firmware Update) and Data Service (Sensor data collected and imported into Database) operations for each WISE/PMC/PMD. Through the SQL database command, IoTstar can be quickly integrated with the Cloud platforms, data analysis tools (Power BI, Google Data Studio, etc.) or SCADA systems to help users quickly build the Cloud "IoT + Big Data" application and significantly reduce the time and cost for the implementation of Cloud "IoT + Big Data" application.

## System Architecture



## Features

- No more programming! Using Browsers to perform Remote Maintenance on WISE/PMC/PMD controllers, and import the I/O channel data (and Power data) from WISE/PMC/PMD controllers into the Database.



- Can be installed on the VM (Virtual Machine) of the Public Cloud platform such as: Microsoft Azure, IBM Bluemix or Amazon AWS to implement the Public IoT Cloud solutions on the WISE/PMC/PMD controllers.

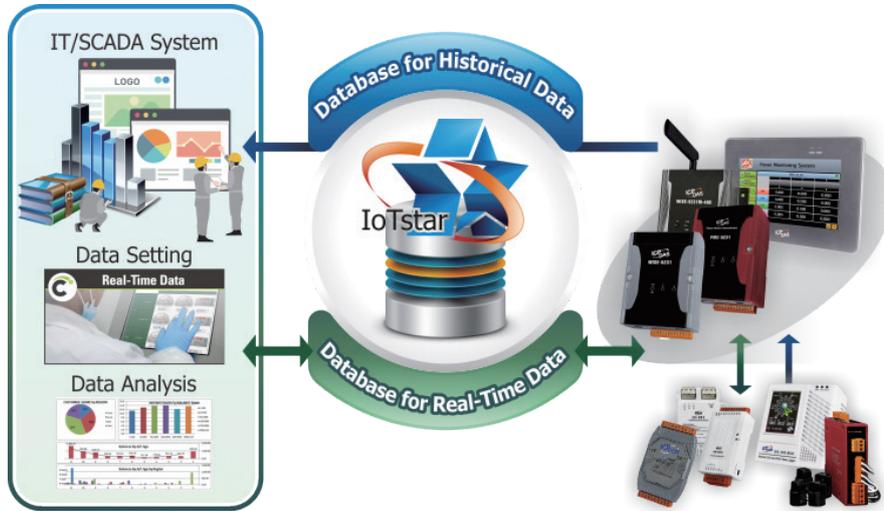
- Can be installed on Windows system (Windows 7/8/10, Windows Server) to implement the Private IoT Cloud solutions on the WISE/PMC/PMD controllers.



- Enables the remote maintenance and firmware update on the WISE/PMC/PMD controllers via user-friendly and intuitive Web page interface.



Collect the Historical and Real-Time sensor data (and Power data) from the WISE/PMC/PMD controllers, and import them into the Database. User can modify the database data to change the status of the DO/AO channel of the sensor connected to WISE/PMC/PMD through the SQL command. Please note: IoTstar currently support MS SQL.

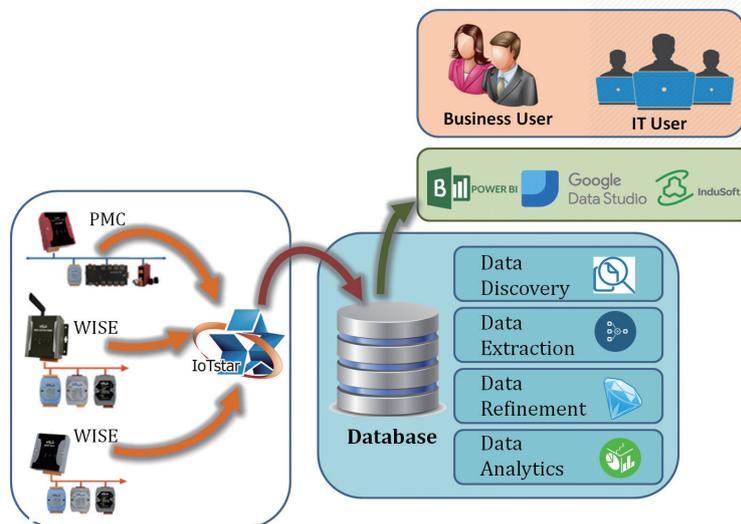


By Database interface, it is easy to integrate with SCADA, Data Analysis tools (Microsoft Power BI, Google Data Studio) or the Service of Cloud platform to retrieve the sensor data (and Power data) directly from the Database for Big Data analysis.

User can review the sensor data (and Power data) directly by the built-in IoTstar Web page interface.



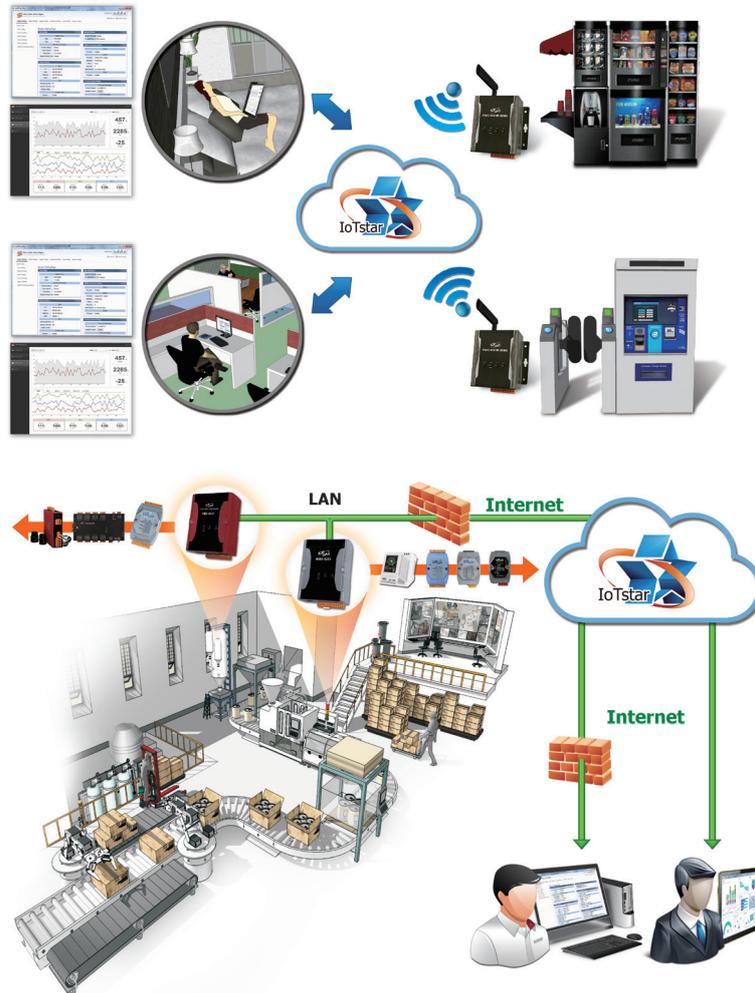
The users can quickly setup the Data pool for their IoT system by receiving and importing the sensor data into the Database through the IoTstar. User can analyze the sensor data with analysis tool, the status can be known, and the necessary actions can be taken in advance to avoid possible damage.



## Applications

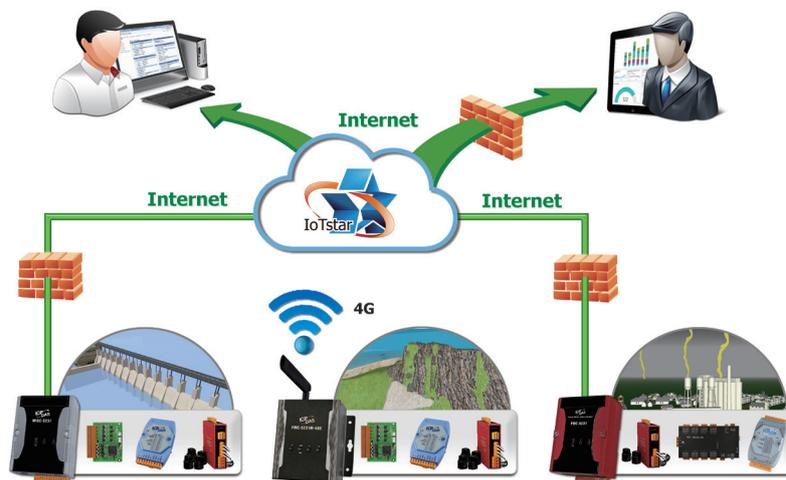
### Remote Machine/Facility Management & Maintenance

Build the IoT cloud monitoring system of the devices/facilities via the "IoTstar + WISE/PMC/PMD" solution, the administrator can perform remote maintenance and firmware update on the Machine/Facility at any time and any place.



### Remote Environment Monitoring and Control

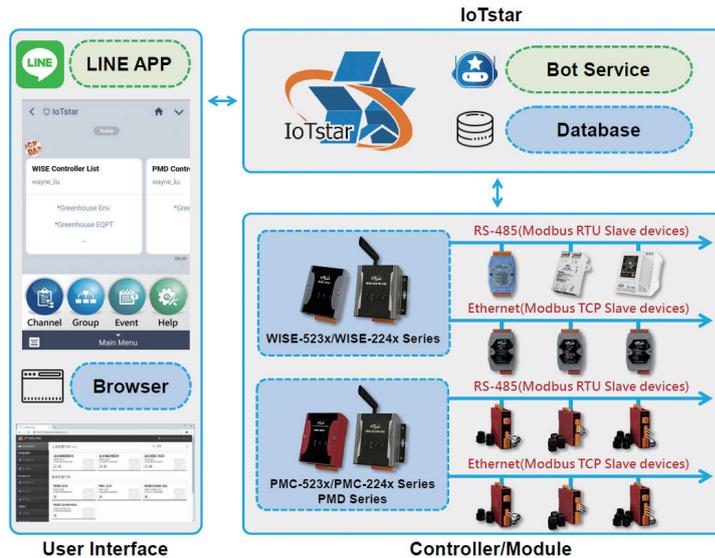
Build the environment cloud monitoring system via the "IoTstar + WISE/PMC/PMD" solution, the administrator can perform remote monitoring of hydraulic facilities, geology facilities, and energy usage of equipments at any time and any place.



## IoTstar Bot Service (Supported LINE App)

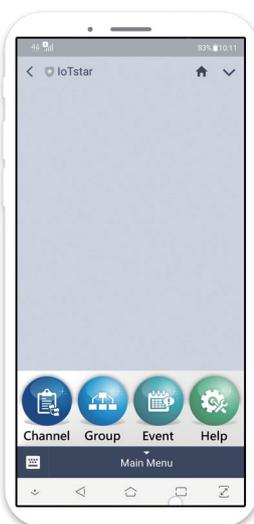
IoTstar Bot Service is an optional software package for IoTstar that provides users two-way message interactions between the WISE/PMC/PMD controller managed by IoTstar and LINE chat rooms. IoTstar Bot Service provides an easier and more convenient mechanism for user to manage his/her remote controllers with LINE App. It does not like the traditional Chatbot which get the information or service by entering the text message; it provides a friendly user interface that includes buttons and dialogue menu to perform the monitoring of remote controllers in an easy way.

With IoTstar Bot Service, users can query the real-time I/O Channel data (or power data) of the on-site I/O modules or power meters and be able to change the value of DO/AO output channels anytime and anywhere. IoTstar Bot Service also provides functions to receive, store, and query the event messages. The controllers can be triggered to send event messages to IoTstar Bot Service by IF-THEN-ELSE rules. After IoTstar Bot Service receive these event messages, it would process and send them to relative LINE users for real-time alarm notification. In addition, IoTstar Bot Service also provides the function to store and query the historical received event messages for system operation analysis.

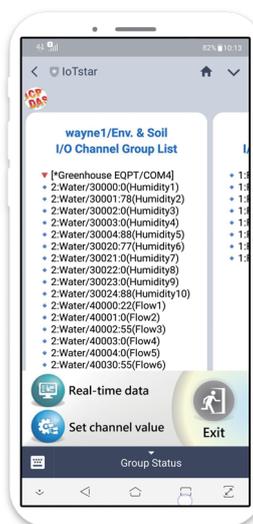


## Features

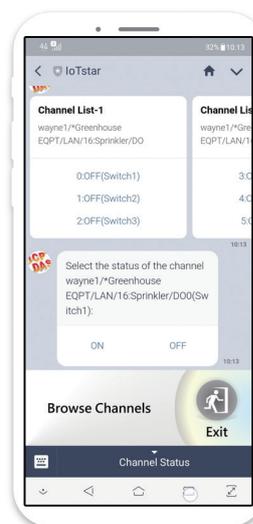
- Monitor WISE/PMC/PMD controllers anytime and anywhere by LINE App.
- Query real-time I/O channel (power meter) data and change output channels.
- Quickly browse the real-time I/O channel data efficiently by Grouping data.
- Receive real-time event messages with text, pictures or videos (WISE can work with the iCAM IP camera to send the picture or video files).
- Review and query the historical event messages.
- Secure and reliable communication mechanism between LINE and controllers.
- Easy to Maintain; only need the upgrade of LINE App.



Operation User Interface



Query I/O channel (or power) data



DO/AO channel setting



Event notification and query

## ■ Why IoTstar?

Items	Description	Benefits
<b>System Installation</b>	IoTstar can be flexibly installed on Windows system or the VM of the Public Cloud platform.	<b>Save the cost in system implementation and maintenance.</b>
<b>Network Setting</b>	Only need to set "Static IP" or "DDNS + Dynamic IP" for the IoTstar.	<b>Dramatically reduce the complexity and cost in network setting.</b>
<b>System Implementation</b>	The system settings of IoTstar/PMC/WISE/PMD can be completed through the web page interface.	<b>No programming is required. The cost of system setting can be significantly reduced.</b>
<b>Controller Remote Maintenance</b>	The operator can perform remote maintenance of the controllers via IoTstar at any time and any place.	<b>Provide immediate maintenance on controllers, save the transportation cost when performing maintenance operations.</b>
<b>Sensor Data Integration &amp; Analysis</b>	IoTstar can import the Sensors data into the database, and work with the data analysis tools for Big Data analysis.	<b>The status of the Sensor can be known in advance to avoid possible damage.</b>

## ■ Function Comparison Table

Version	Standard Function				Optional Package
	Remote Access of Controllers	Remote data import service with Database		Operation Optimization	IoTstar Bot Service (*2)
		Historical Data	Real-Time Data		
<b>IoTstar v1.1</b>	Yes	Yes	-	-	-
<b>IoTstar v1.2(*1)</b>	Yes	Yes	Yes	Yes	Yes

Note 1: Support WISE-523x/WISE-224x series (with v1.4.0 or later version firmware).  
Support PMC-523x/PMC-224x/PMD series (with v3.4.0 or later version firmware).

Note 2: It is the optional package for IoTstar v1.2 or later version.

## ■ Installation Platform Requirement

	Specification Suggestions
<b>CPU</b>	64-bit (x64); 3.0 GHz or higher GHz Processor
<b>RAM &amp; Hard Disk space</b>	<ul style="list-style-type: none"> <li>Minimum 8 GB for RAM. Minimum 64GB for Hard Disk space.</li> <li>As the number of controllers, the number of sensors, and the size of Database is increasing, please do not forget to increase the size of the RAM and Hard Disk space as needed to ensure the best performance of the system.</li> </ul>
<b>OS System</b>	Windows 7, Windows 8, Windows 10, Windows Server 2012 or later OS system (64-bit Windows required).
<b>.NET Framework required</b>	Microsoft .NET Framework 4.5 or later installed.
<b>Notes</b>	IoTstar needs to work with the IIS Web Server and MS SQL database system.

## ■ Ordering Information

<b>IoTstar-RA10C20</b>	IoTstar runtime with 10 accounts, 20 controllers for each account.
<b>IoTstar-RA10C50</b>	IoTstar runtime with 10 accounts, 50 controllers for each account.
<b>IoTstar Bot Service_L</b>	IoTstar Bot Service (optional package for IoTstar; support LINE App).