HollySys

HAMS
HOLLiAS ASSET MANAGEMENT SYSTEM

HollySys

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**Intelligence
For Excellence**

www.hollysys.com

Profile

Founded in 1993, HollySys is a leading supplier of intelligence solutions with more than 4,700 employees and operates in both China and abroad. HollySys is headquartered in Beijing with R&D, production, and service bases in Beijing, Hangzhou, Xi'an, Singapore, and local branches in major cities in China, as well as offices in India, Malaysia and Indonesia, establishing a comprehensive service network across the world.

HollySys business consists of industrial intelligence, transportation intelligence, and food and pharmaceutical intelligence, covering the main industries for the national economy and the people's livelihood. With years of technological accumulation in various fields and continuous capacity building, we can provide customers with customized integrated solutions, stable and reliable products, and full lifecycle services, helping them improve market competitiveness. Over the past three decades, we have served more than 35,000 clients, successfully completed more than 45,000 projects, and gained more than 1,000 new clients each year, making HollySys a world-renowned brand in automation and intelligence filed.

The HOLLiAS industrial control platform of HollySys features a series of advanced, practical and reliable industrial automation systems and HollySys automation Instrumentation. The system products include MACS-K, industrial control system DCS; professional control systems such as DEH, ETS and SIS, and whole-process information-based software for manufacturing enterprises. Instrumentation products include isolated safety barriers, signal isolators, surge protectors, power transmitters, pressure transmitters, electromagnetic flowmeters, metal tube float meters, magnetic level gauges, radar level gauges, throttling elements, thermal elements, and pressure gauges.

The company's products have been successfully applied to major projects and key equipment, including 1000MW ultra-supercritical thermal power units, 1.2 million tons of urea and 5 million tons of oil refining main units, earning a good reputation in the industry.

Specializing in HollySys Instrumentation and control system engineering and integration, the company can provide both new and brown-field projects of enterprises with HollySys proprietary products, as well as comprehensive engineering services such as customized design and construction & commissioning.

HollySys has always pursued continuous innovation and R&D while sticking to its vision "create the most valuable intelligent company through stable and sustainable development" to provide more reliable, secure, and intelligent technology and products for our customers.

Contents

Current Issues of the Industry

Complicated Configuration and Operation Caused by the Wide Variety of Equipment

The instruments installed in the factory often come from different instrument suppliers. The big differences in equipment types, equipment versions, and installation time causes inconvenience for users in operation, management, maintenance, and upgrades.

Waste of Manpower, Material Resources and Time as a Result of Routine Inspections

Traditional equipment maintenance methods mostly rely on man observation and judgment. They cannot understand the internal performance changes inside of the instrument, and it is difficult to find potential failures of the instrument. Therefore, they cannot effectively estimate the operating state of the equipment.

Low Equipment Reliability

In the field of industrial process automation, unplanned shutdowns often occur due to unexpected equipment failures. Therefore, how to ensure the normal operation of the equipment and improve the reliability of the equipment has become a major concern for the management of major factories.

Repeated Investment Caused by Upgrading

Various technologies are constantly evolving and changing with each passing day. The use of new technologies requires changes in current assets. Upgrading existing software and hardware requires a large amount of upgrade costs, and the original investment cannot be guaranteed.

**Toxic Gas
Harsh Climate
Explosive Areas**

- How can factories effectively utilize current assets to maximize the return on investment facing an increasingly severe economic situation?
- How to improve equipment reliability and reduce the production impact caused by equipment failure facing harsh field environment and working conditions?
- how to reduce equipment maintenance costs, optimize the operation of the factory, and improve the competitiveness of the factory facing various strong competitors?

System Overview

Above problems can be solved by HAMS. Based on HART, FF and Profibus protocol, HAMS uses advanced equipment integration technology EDDL (Electronic Device Description language) and FDT/DTM (Field Device Tool/Device Type Manager), integrates data collection and data analysis, and provides integrated solutions such as online configuration, remote diagnosis, calibration management and predictive maintenance to improve the effectiveness of the plant and increase profitability.

⊟ HAMS Can Bring the Following Advantages to Your Plant Management:

01 Monitoring the operation status of instruments online, and promptly notifying maintenance personnel at the first sign of error.

02 Preestablishing maintenance strategies to address potential problems in advance.

03 Improving equipment availability to minimize shutdown caused by equipment.

04 Being perfectly integrated with the Distributed Control System (DCS).

05 Providing a comprehensive inventory of equipment Device Description (DD) files for plug-and-play functionality, and reducing customer maintenance time.

06 Offering maintenance and spare parts advice based on equipment status, and providing quantitative data for maintenance planning.

07 Automatically generating maintenance documentation to reduce manual documentation workload.

08 Ensuring the safe and stable operation of the plant.

⊟ HAMS Features

HAMS Information Platform
HAMS can access to all HAMS workstations in the whole factory with a web browser and obtain all instrument information of each workstation.

Integration with DCS
HAMS can be seamlessly integrated with DCS and realize control and management at the same time.

Multiple Connection Methods
HAMS can be connected through interface devices such as HOLLiAS MACS DCS I/O modules, HART MODEM, multiplexer, HSE/H1 and PCI.

Unified Instrument Management
In addition to managing smart instruments with HART, FF, and Profibus, HAMS is also able to manage non-smart instruments in a unified manner.

Outstanding Advantages over Handheld Communicator

VS

Handheld Communicator	HAMS
· It is used for field or cabinet inspection. · Only one instrument can be configurated at a time. · It takes multiple times to connect when configurated multiple instruments. When the impedance does not match, a resistor must be connected in series, which might interfere with the field signal. · There is no compatibility, and the handheld communicator different manufacturers are not universal, so the cost of matching all manufacturers is very high. The old communicator cannot be compatible with the new instrument. The upgrade is inconvenient. · Only device data can be obtained, and there is no management function. · The instrument modification needs to be recorded manually, which is easy to occur errors or omissions, and difficult to retrieve and save. There is no modification history.	· It is used at central control rooms or cabinet rooms. · All instruments connected to HAMS can be configurated at one time. · There is no need to repeat wiring to configurate all instruments. · It performs a unified operation method for instruments of different manufacturers, and debugs all instruments of all manufacturers with one HAMS. It is easy to upgrade and always supports the latest instruments. · HAMS monitors and diagnoses the status of the equipment, carries out active maintenance and predictive maintenance of the equipment, and improves the reliability and availability of the entire factory equipment. The database automatically records all modified data and modifications · Information such as history, maintenance forecast, fault check and alarm can be recorded in the database automatically..

Unified Management of Multiple Instruments and Equipment

⤷ Open and Standardized Integration to Achieve Interoperability

| HART Protocol | Fieldbus Foundation Protocol | Profibus PA Regulation | EDDL | FDT/DTM Technology |

⤷ Abundant Equipment Information with Two Free-switching Interfaces

EDDL Parameter Interface	DTM Parameter Interface
· All registered DD/EDD files from the HART foundation. · All parameters, functions, and methods outlined in the DD files. · Parameters in a format resembling that of a hand hold communicator. · Black font to indicate read-write and gray font to indicate read-only.	· Providing a graphics interface for easier understanding. · Including analysis interface for parameters, functions, and graphics. · Ensuring unified display in accordance with DTM style guidelines. · Running within the embedded FDT framework of the HAMS system based on an added-in DTM. · Debugging and dynamic testing for customized complex function by manufacturer.

Higher Equipment Reliability Improved by Online Real-time Monitoring and Diagnosis

It refers to predict the performance of the equipment, and obtain early warning signals to help formulate maintenance plans by monitoring the status of the equipment, The status monitoring function of HAMS provides necessary data to predict the failure before the equipment fails, helping users to make correct decisions. It also refers to discover potential problems in time through the health status data of the equipment.

Real-time Monitoring of Status Information

It refers to monitor the status of each instrument in real time online and provide diagnostic information. It can clearly identify a variety of states, so that users can see the operating state of the device at a glance.
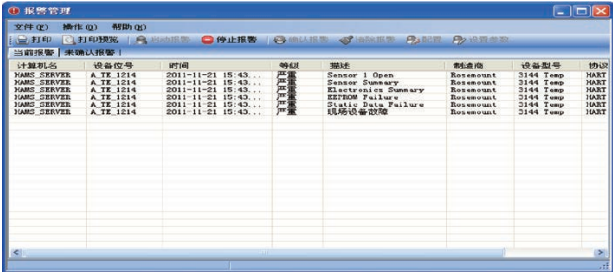
Green: Normal   Red: Abnormal
Gray: Offline   Yellow: Maintenance
Blue: Suggestion

Accurate Early-warning Information

Alarm configuration supports diagnosis cycle configuration and diagnosis item configuration. The user can configure the alarm information. When an alarm occurs, the HAMS equipment management software provides sound and other prompts. At the same time, the database automatically records the alarm event and content. The alarm can also be automatically confirmed as required.

Predictive Maintenance Management

Minimizing Repair Time

HAMS can accurately locate the cause of the accident, and determine whether the equipment needs maintenance and maintenance timing. The diagnosis function can detect the location of the problem before the failure occurs, prompting the staff to take timely measures before the failure causes a major accident.

Achieving Integration of Instruments Maintenance

HAMS offers fault diagnostic function based on EDDL and FDT/DTM, enabling automatic detection of instrument malfunctions and triggering the alarm.	Upon detecting a fault in an instrument, HAMS automatically generates maintenance plans according to the fault, which reminds maintenance personnel to address the issue.	HAMS records information of malfunction cause, repair personnel, repair costs, repair time, and necessary spare parts.	HAMS records availability rate, serving as benchmarks for assessing instrument maintenance efficiency.
HAMS classifies alarm level according to malfunction severity: failed, maintenance, or advice.	HAMS supports period maintenance plans, and offers customization maintenance plan according to field experience.	In cases where instrument replacement is required on-site, HAMS quickly locates the inventory and track the transactions.	HAMS records maintenance events, offering a periodic comparison of maintenance frequency and costs.
			HAMS records malfunction types, analyzing common malfunction types and the corresponding solution.

Convenient and Fast Remote Management

➡ Quick Parameter Configuration

Offline Configuration Conducive for Early Debugging

HAMS can add offline devices arbitrarily in it, save the offline device configuration results in the database, and download them directly to the meter after the meter is online. It is independent of the instrument installation stage, which is conducive to the early debugging and ensures the instrument correct online operation.

Clear Display of the Instrument Connection Structure via Physical Network Management View

There is no need to reconfigure when connecting to HollySys DCS. The actual physical connection structure of the instrument can be clearly displayed by directly importing the configuration information of the DCS project. If there is no DCS project, it also supports manual configuration of the physical network in advance.

➡ Quick Configuration Comparison

Configuration Comparison

The configuration records at any two moments can be compared. The different configuration parameters are displayed in red. It is convenient to query parameter modification and analyze the cause of equipment failure.

Historical Configuration Parameter Storage

You can view any configuration record in the device history. Any configuration parameters can be directly downloaded to the currently running instrument, eliminating a lot of paper documents and avoiding human input errors.
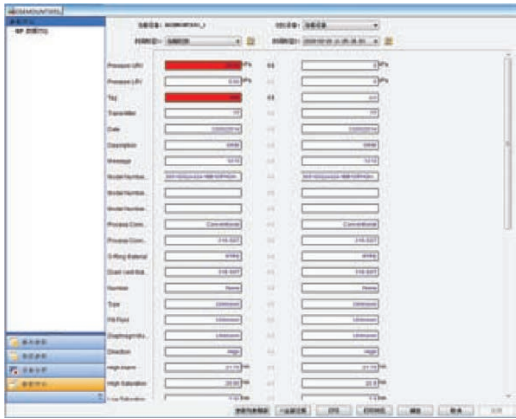
➡ Quick Connection and Loop Check

Quick Tag Match

The device tag can be uploaded to the HAMS device management system by renaming it. There is no need to connect the portable manipulator with the equipment terminal in the cabinet, and then confirm whether the HART label is correct.

Quick Confirmation of Device Connection Location

When the equipment is connected with HollySys DCS system, the HAMS will display the connection location of each equipment. It realizes loop inspection work.

Calibration Management

The calibration management function of HAMS supports program setting, equipment calibration appointment and equipment calibration management. HAMS can create, save, modify and track calibration schemes and calibration plans. This function allows a single plan or plan to be updated and applied to all instruments.

➡ Easy Design of Calibration Schemes

You only need to enter the calibration period, the number of calibration points and the accuracy of the instrument, and the system will automatically generate the calibration plan (the system automatically obtains the device model, manufacturer, range, input and output signals, etc.). In order to improve the consistency, reliability and practicability of the plant's resource production, HAMS allows multiple reuse of calibration schemes.

➡ Calibration Appointment in Advance and Automatic Expiration Reminder

You can design a calibration test plan for a single device or a group of instrument, and then drag the device icon to the calibration plan to specify the device. Automatic reminder will be triggered when the calibration period arrives.

➡ Automatic Report Generation

The calibration plan in HAMS can be derived when calibrating the field equipment. It performs offline calibration of the equipment on site according to the calibration plan, and then easily enter the calibration results into the HAMS according to the system navigation prompts. If the saved calibration results are used with a calibrator with automatic recording function, the calibration plan can be automatically downloaded and the calibration data automatically uploaded, which avoids the trouble of manually entering calibration records.

Comprehensive Ledger Management

Device Management Level Improved by Ledger Management

The powerful ledger management function records the basic information of all equipment in the whole plant, creates and maintains an accurate equipment database, and comprehensively improves the equipment management level. The topological structure of the equipment account management can be set in the navigation window of the ledger management, and the equipment classification, division, and state management of the whole plant can be set. With the search function, you can easily search for the device information you want to view. And it can be used as a tool for plant assets preservation and tracking.
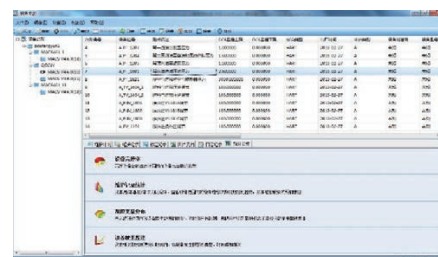
Log Records for Better Documentation

It refers to automatically record all configuration information, operation information, alarm information, configuration information, etc. related to the device, which truly avoids cumbersome documentation and review work. You can print and view the detailed information of each record to clearly understand any operation of anyone. Through the automatic document recording function of the HAMS intelligent equipment management system, all information such as the configuration and operation of each equipment can be automatically recorded, saved and updated, saving time and money.
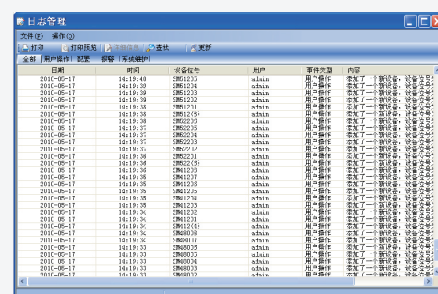
Work Order Management to Track the Maintenance Process

HAMS provides functions such as creation, printing, saving and exporting of work tickets. It can provide auxiliary generation models for preventive maintenance according to the maintenance plan. The main purpose is to clarify the tasks to be performed and start the process of completing related tasks. When on-site instrumentation equipment needs to be overhauled, an equipment maintenance work ticket can be created and the entire process of the maintenance task can be managed.
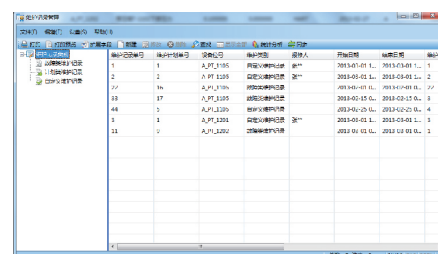
Powerful Data Management

Automatic Recording of all Events and Alarms Related to HAMS

It can replace manual recording and management, thus avoiding manpower waste and human error. All maintenance and alarm events can be checked, thereby improving the efficiency of the entire plant.

Universal Data Processing Applied to All Equipment Information

All device data is managed in the same database mode, and the same database operation can search for any device information in the system. Data storage has high reliability and high availability. It provides effective basis for future inquiry and decision-making.

Import, Export, Backup and Restore Functions Included in Database

The equipment data once established can be exported and stored permanently, which provides a guarantee for the integrity of the data. Supporting real-time or periodic backup of data, it can repair data loss or data conflict caused by abnormal conditions to avoid loss caused by data loss.

More Safety and Eco-friendliness

⇥ More Secure System Supported by Permission Settings

HAMS users are divided into operating users and engineer users, and different types of users have different operating authorizations. Engineer users can modify the operation authority of all users except themselves. The authority function makes equipment configuration, calibration management, alarm diagnosis configuration and other operations safer. Each user can modify his own password. Once a user is added, it cannot be deleted but can only be shielded to ensure the integrity of data records and to be well documented.

⇥ Audits Can be Carried out at Any time, and the Document Recording Time is Significantly Reduced

Through the automatic document recording function of the HAMS intelligent equipment management system, all information such as the configuration and operation of each equipment can be automatically recorded, saved and updated, saving time and money.

## Saving Cost to Create Higher Value

⇥ Saving Upgrade Cost

HAMS adopts advanced EDDL technology and FDT/DTM technology. EDD files and DTM are provided by equipment manufacturers, using unified equipment description language and unified standards. Adding new equipment or upgrading equipment only needs to provide a new EDD file or a new DTM, without upgrading the HAMS software.

⇥ Reducing Field Maintenance Cost

It can reduce the number of round trips of maintenance personnel from the maintenance workshop to the field, reduce a large amount of inspection time, and enable maintenance personnel to focus on predictive maintenance events, thereby reducing labor cost. Predictive maintenance reduces equipment failures, reduces the chance of shutdown, and saves major economic losses caused by shutdown.

HollySys Membership
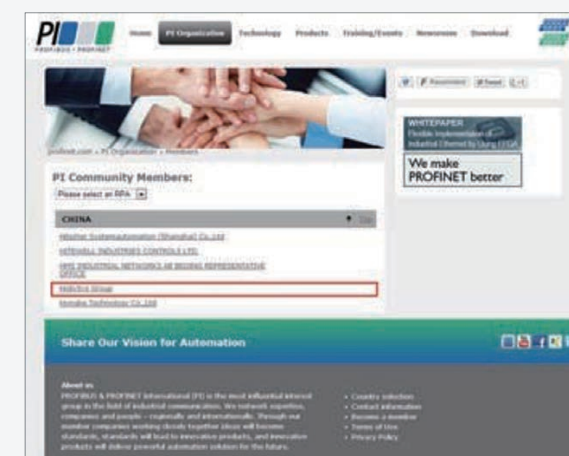
Instrument Manufacturers Supported by HAMS

ABB	**Duon System**	**InterCorr**
Actaris Neptune	Dynisco	ISE-Magtech
Ametek	Endress&Hauser	Kajaani Process Measurements

Analytical Technology Inc.	**FINT**	**Klay Instruments**
Anderson Instrument Company	Fisher Controls	Knick
APLISENS	Flowserve	Kongsberg Maritime

Apparatebau Hundsbac	**Fluid Components**	**KOSO**
Badger Meter	FOXBORO ECKARDT	Krohne
BD Sensors	Foxboro	Kurz Instruments

BEKA	**Fuji**	**LABOM**
BERTHOLD	General Monitors, Inc.	Lanlian Instruments
Bopp & Reuther Messtechnik	GP:50	Magnetrol

Bourdon-Haenni	**HACH LANGE**	**Manufacturer Expansion**
Brooks Instrument	Harold Beck and Sons	Masoneilan-Dresser
BTG	HCF	Metran

Daehan Control	**HEINRICHS**	**METROVAL**
Daniel Industries	Hengesbach	Metso Automation
Det-Tronics	Hitachi High-Tech	Mettler Toledo

DKK	**HOFFER FLOW CNTRLS**	**Micro Motion**
Draeger	Honeywell	Mobrey
Drexelbrook	Huakong	Moore Industries

Druck	**INOR**	**MSA**

M-System Co.	**SIC**	**Westlock Controls**
MTS Systems Corp.	SICK-MAIHAK	WIKA
NET SAFETY	Siemens Milltronics PI	Yamatake

Ohmart	**Siemens Milltronics P**	**Yokogawa**
ORANGE	Siemens	YTC
Oval	Smar	

Panametrics	**SMC**	
Paper Machine Components	Sparling Instruments	
Peek Measurement	Spirax Sarco Italy	

Phase Dynamics	**Status Instruments**	
Phoenix Contact	StoneL Corporation	
PMV	Thermo Measure Tech	

PR Electronics	**Thermo Measure Tech**	
Pyromation Inc.	TOKYO KEISO	
Ronan	Toshiba	

Roost	**TRACERCO**	
Rosemount Analytical	Turbo	
Rosemount	Tyco Valves & Controls	

Rueger	**VEGA**	
Saab Tank Control	Viatran	
Samson	Vortek Instruments, LLC	

Satron Instruments	**WELLTECH SHANGHAI**	