HollySys

BROCHURE

Industrial Optical Bus Control System

New-Generation Process Control System

Intelligence For Excellence

www.hollysys.com

About OCS

HollySys has launched the Industrial Optical Bus Control System (OCS) based on the HOLLiAS MACS® platform. This industrial process control system combines advanced industrial optical bus technology with software-defined I/O technology.

OCS supports explosion-proof Industrial Intelligent Data Transmission Unit (iDTU) pre-installed in industrial fields, with signal types that can be remotely defined/modified through software. The system adopts the highly reliable and real-time Industrial Optical Bus (Onet) for signal transmission. This passive optical bus utilizes physical spectral division technology, which ensures no protocol conversion or delay, making it safe and reliable. OCS eliminates traditional intermediate links such as field junction boxes, marshalling cabinets, and safety barrier cabinets. In addition, its advanced optical bus technology significantly reduces the usage on traditional copper core cables. Its distributed system structure converts customized projects of the traditional control system into standardized projects, greatly reducing the engineering efforts and implementation project cycle. The system does not require a central control cabinet or cross-wiring, reducing cable usage, workload, and potential failures, significantly reducing project construction capital expenditures (CAPEX) and operational expenditures (OPEX). The system installation and application are highly flexible, allowing I/O to be added at any location in a plant without disrupting the arrangement of equipment cabinets. This flexibility provides a simple and user-friendly platform for future project adjustments and upgrades, resulting in significant cost reduction for users with regard to future system upgrades and expansions, as well as a reduction in the workload and expenses of system maintenance.

Software-Defined I/O Technology

Industrial Optical Bus Technology

Industrial Intelligent Data Transmission Unit (iDTU) replaces traditional junction boxes and integrates multiple control functions into one unit.

Miniaturization
An iDTU as big as two A4 papers in size

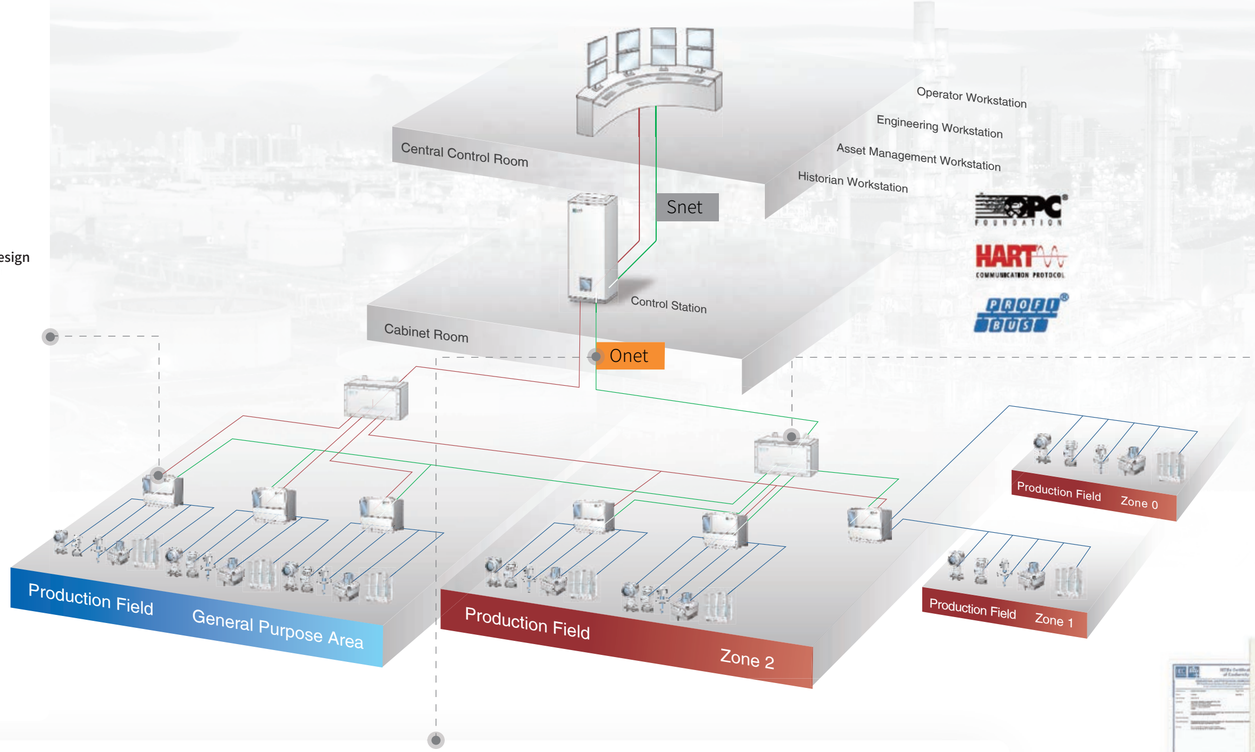
All in One
Enclosure adopting integrated aluminum die-casting process

Visualization
Operating status displayed without opening the enclosure

User-Friendly Design
Handle design on the side

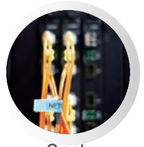
- **Software-Defined I/O Signal Type**
  Support for AI, AO, DI, DO, RTD, TC, and PI signal types, and customization of the signal type
- **Redundancy Configuration and Fault Tolerance**
  Full redundancy configuration in I/O, communication and power modules, communication links, etc.
- **Intelligent Monitoring**
  Real-time monitoring of temperature and humidity in industrial fields, communication and equipment status diagnosis, and equipment failure triggering online switchover without interruption of system running
- **High Reliability**
  Surge protection design among all ports and single channel equipped with isolators/safety barriers to isolate high-voltage signals and surges
- **High Compatibility**
  Support for traditional and intelligent instrument access, and worked as a master or slave station to integrate with third-party systems, asset management system, and traditional control systems
- **Long Lifespan**
  All components adopting automative-grade chips, stable operation guaranteed under the temperature from -40°C to 55°C, corrosion-resistant design in and out of the enclosure, and restrictive breathing seal class preventing corrosive gases and condensation

OCS Network Architecture



Industrial Optical Bus Redundant Junction Unit (RJU) is used to collect signals from iDTUs, and then signals are remotely transmitted to controllers via the main optical fiber.

- Power supply not required, and meeting explosion-proof standards
- Adopting physical optical splitting technology, no protocol conversion and delay, and safe and reliable operation
- Optical components contributing to a longer lifespan compared with switches, MTBF time close to infinity
- Support for distribution of 1 optical fiber to 16/32 channels
- Suitable in Zone 2 hazardous area



Onet (Onet Industrial Optical Bus) is used to achieve remote communication between control equipment such as iDTU and RJU, and controllers.

- **High Efficiency**
  2 copper wires required by an instrument signal in traditional control systems, and only a pair of redundant optical fibers needed for 512 instrument signals in Onet which boasts high bandwidth and robust real-time communication
- **High Quality**
  Optical fiber transmission which features strong real-time performance, anti-electromagnetic interference, and common mode interference and offers higher and more stable transmission rates compared with traditional communication methods
- **High Reliability**
  Redundant star network topology, which ensures safe and reliable transmission, distributed faults, and flexible expansion, and Onet conforming to the international standard IEC61158, national standard JB/T 10308.3-2001, and European standard EN50170

Certificates and Patents

5 invention patents, **8** design patents, and **1** software copyright

Anti-explosion Marking: Ex nA nC nR e [ia Ga] IIC T4 Gc

IECEX | Anti-explosion | CCC | G3 | CE

Patents

Customer Benefits

Cable cost reduced by 90%, cable laying, and cabinet and cable tray construction cost reduced significantly

Total cost reduced by over 30%

Space occupied by cabinets reduced by over 90%

Controller cabinets provided in electronics rooms without the need of junction, terminal, and safety barrier cabinets, and project reconstruction not limited by the original project design or space

Standardized projects which contribute to a significant reduction in the workload of FAT and SAT, and more flexible and efficient design changes

Project cycle shortened by over 50%

Human resources saved greatly

Convenient operation, which shortens personnel training time, simplified spare parts management, fewer cables and pipe bridges, less workload, and fewer engineering files

Cumulative savings of **200,000** kilometers of cables

Cumulative savings of **18,000** tons of copper

Cumulative reduction of **70,000** tons of CO2 emissions

Typical References

Indonesia PT QMB New Energy Materials Laterite Nickel Extraction Plant Project	**Tianjin** Sinopec Nangang 1.2 MTA Ethylene Project	**Henan** Henan LB Group 120 KTA Ferrous Iron Pulping Project	**Shandong** Shandong Ruikang Specialty Chemicals Co., Ltd. 8 KTA FB2C Thermosensitive Paper Additive Project	**Hebei** PETROCHINA Jidong Oilfield Company NP1-3 Rolling Development Project	**Inner Mongolia** PETROCHINA North China Oilfield Company 1 MTA Combination Station Project
Guangdong Guangdong Guangkang Biochemical Technology Co.Pesticide Project	**Shandong** Shandong Huaxia Shenzhou New Material Co., Ltd. 10 KTA PVDF Project	**Zhejiang** Zhejiang Kinglyuan Pharmaceutical Co., Ltd. 60 TA Bromomethyl Biphenyl-Methyl Formate, 120 TA ST, and 500 TA Diimidazole Project	**Xinjiang** Xinjiang Qiya Group 200 KTA Polysilicon Project	**Shandong** Weifang Xianda Chemical Co., Ltd. Control System Reconstruction Project	**Jiangsu** Jiangsu Qiangsheng Chemical Co., Ltd. 5.5 KTA Organic Peroxides Project
Jilin Changfeng Chemical Co., Ltd. Workshop Project	**Shandong** Weifang Nuchlor Chemical Co, Ltd. 4 KTA ATP Project	**Gansu** Gansu Jingmei Energy Company 600 KTA Synthesis Ammonia and 700 KTA Urea Project	**Anhui** Anhui Pumiyang New Material Co., Ltd. 125 KTA Photocuring and New Material Project	**Hubei** Hubei Hongyuan Pharmaceutical Technology Co., Ltd. 6 KTA Lithium Hexafluorophosphate Project	**Anhui** Sinopec ZAUCC 20 KTA C4 to Butene Project

Application Scenarios and Industries

Recommended Application Scenarios

- Projects requiring remote instrument junction boxes
- New projects requiring a large number of cables
- Fast-pace new project
- Project reconstruction or expansion, or I/O point addition
- Long distance of cable laying between control rooms and field instruments

Petrochemical

Coal Chemical

Fine Chemical

New Material

Pharmaceutical

Oil & Gas

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