



AVCOMM[®]

G3006

Datasheet

Aiming to create better and safer working environments and life experiences through the products we deliver.



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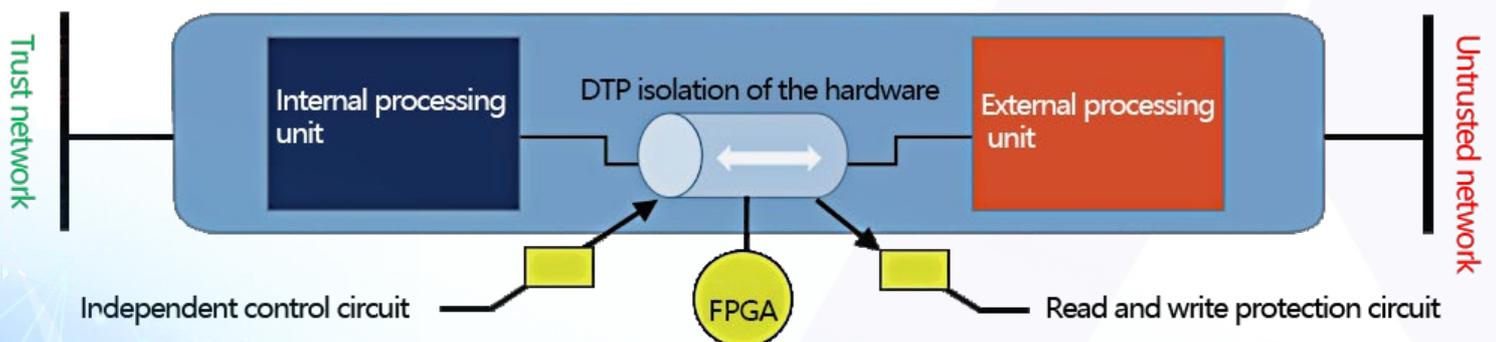
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Unidirectional Security Gateway

AVCOMM Industrial Unidirectional Security Gateway is a hardware product specifically designed for network isolation and data transmission between industrial OT and IT. The system is equipped with in-depth analysis and control of Modbus/TCP, OPC, S7, WINCC, DNP3, IEC and other industrial protocols to protect SCADA, DCS, PLC, PCS and other industrial control systems from external cyber attacks, and achieve the safe data transmission and unidirectional data acquisition between IT and OT. The product is mainly used in the industrial cybersecurity protection scenes of coal, steel, electric power, oil and gas, mechanical automation and other enterprises.

Product Architecture

AVCOMM Industrial Unidirectional Security Gateway system adopts "2+1 dual-host architecture mode", which consists of three parts: internal processing system, external processing system and data channel control system. The data transmission tunnel control (DTTC) plays the role of "lock" control. The DTP isolation technology independently developed by AVCOMM is used to physically protection the internal and external network, completely block the TCP/IP protocol connection, physically isolate the industrial OT and Internet, and ensure the safety, reliability and stability of data transmission.





Order Information

Model Number	Description
G3006	<p>Internal machine: three 10/100/1000BASE-T ports (including one HA port), one console port, and two USB ports;</p> <p>Extranet machine: 3 10/100/1000BASE-T ports (including 1 HA port), 1 console port, and 2 USB ports;</p>



Detailed Specification

Functional Category	Function Items	Functional Description
Data Exchange	Industrial protocol	Support Modbus/TCP, OPC, S7, WINCC, DNP3, IEC and other industrial protocols deep analysis and command control
	File exchange	Unidirectional or bidirectional file synchronization based on SMBFS, SAMBA, and NFS.
	Database exchange	Unidirectional or bidirectional synchronization of mainstream databases such as ORACLE, SYBASE, MySQL, SQL Server, DB2, Dameng, Kingbase, Gbase
	Video exchange	Compatible transmission of video traffic in conjugated networks
High Availability	Hot standby	Provides the HA Hot standby function
	Link aggregation	Provides the link aggregation function
Safety Protection	anti-virus	The antivirus module can detect and eliminate viruses in the transmitted application data. The virus signature database supports automatic and manual upgrade
	Intrusion detection	Provides intrusion detection module with real-time intrusion detection mechanism
	Content depth recognition	The built-in intelligent semantic analysis engine parses data content to ensure that only data files that comply with confidentiality and security policies are allowed to be synchronized
	Access control	Access control can be implemented based on IP, MAC, port, and protocol
	Identity authentication	It provides rich authentication functions, anti-riot cracking mechanisms, and user access control
System Management	Flow control	Provides granular flow control
	Log audit	The system provides rich log functions for data exchange, virus intrusion, and system operations Detailed records and audits.
	Centralized management	Support standard SNMP, but cannot connect to third-party network management platforms
	System monitoring	The WEB management page provides a visual display of system and service status
	System maintenance	System built-in network analysis, network fault troubleshooting tools

Functional Category	Function Items	Functional Description
Performance	throughput	≥500 Mbps
	Maximum number of concurrent connections	≥100,000
	MTBF	≥50,000hours
	system delay	< 1ms
	Maximum database synchronization rate	≥1800 /sec
Physical Parameters	Interface configuration	Intranet machine: three 10/100/1000M BASE-T ports (including one HA port), two USB ports, and one Console port; Extranet machine: three 10/100/1000M BASE-T ports (including one HA port), two USB ports, and one Console port
	installation	2U rack mounted EIA RS-310C standard chassis, high strength steel structure chassis
	Dimension	430MM*89MM*450MM (W x H x D)
	power supply	Standard single power , supporting extended redundant power supply, ranging from AC 110 to 220V 100W
	Storage humidity	5% ~ 95% without condensation
	Working temperature	0~50°C

Product Features

System requirements

- NS OS, a multi-core, multi-threaded and secure operating system based on Linux kernel with independent intellectual property rights. It provide secure operating system software copyright registration certificate.
- It supports dual-system boot. When the current system is abnormal, the system automatically switches to the backup system, and supports mutual backup and automatic restoration function through the management platform controls system boot sequence .

System monitoring

- The system has LCD screen. LCD menu can display the internal and external network machine IP address, CPU usage and memory usage and other information of the whole device. The panel can control the whole device to reset and shutdown, has the function of the device abnormal (such as network IP conflict, abnormal communication, etc.) monitoring and alarm.

File exchange

- Supports the file exchange function for the dedicated file exchange client.
- Supports Windows, Linux, Tongxin UOS, Galaxy Kylin and other mainstream operating systems.
- The client supports automatic organization architecture refresh, and the user organization architecture can be imported and exported.
- The client supports file uploading and progress bar display.
- The file exchange client supports windows AD domain account login authentication.
- The client supports automatic file list refresh.
- Supports setting user' s exchange file permissions
- It limit the file transfer size of specific users, and has user-level file exchange permission policies setting, such as allowing or disabling transmission from the Internal network to the external network or from the external network to the internal network.
- Supports virus checking and killing, file size, file type, and file content detection, and rejects non-compliant files transfer.
- Supports foe file sending approval.
- Supports identity authentication and encryption during file transfer.
- Supports log audit, recording detailed information, including the sender/receiver, file size, file name, and detailed audit of file content, such as downloading specific files in log audit records.
- Sending files function supports one-to-one, one-to-many, and many-to-one users.

- File client security supports policies such as password validity period, max number of login failures, and lock duration.
- The file exchange client supports automatically starts and receives files.

File synchronization

- File synchronization supports file transfer protocols such as FTP, SMB, and NFS, enabling bidirectional file transfer from the Internal network to the external network and from the external network to the Internal network. Support controllable file transfer direction to achieve unidirectional or bidirectional transmission
- Supports three file synchronization modes: mirroring, incremental, and mirroring before incremental.
- Supports virus detection for synchronized files.
- Supports file interruption resume function;
- Supports the file name detection mechanism for the transferred files;
- Supports the blacklist and whitelist control of file types, filtering based on file format characteristics, and do not dependent on file extensions. Support file extensions customization function.
- Supports intelligent semantic analysis of file content, filtering the content keywords of specified files to ensure that only data files that comply with confidentiality and security policies can be synchronized.

Product Features

- File synchronization supports time range control: the time range can be executed at one time, within a period, or periodically.
- Supports policy filtering by task. Support one source multi-aim and multi-source one aim file synchronization;
- Supports transmission policies such as deletion after transmission and automatic deletion source files after synchronization.
- Supports subdirectory synchronization within a directory, and the subdirectory level is not limited
- Supports control policies for files with the same name, such as Overwrite, Discard, and Rename.
- It supports file synchronization fault tolerance policies and alarm policies, synchronization errors can be automatically retransmitted, and abnormal synchronization conditions can be terminated to pop up alarm prompts and log records
- Supports synchronization or dissynchronization of specified contents in specified fields.
- Database synchronization supports time range control. The time range can be executed at one time, within a time range, or periodically. The amount of data to be synchronized is optional and customized.
- Supports Oracle database RAC cluster synchronization.
- Support SuperMap, ArcGIS software custom generated database table increase, modify and database table field increase, modify operation synchronization;
- Support GIS data release synchronization module, support GIS data point, line, surface data synchronization;
- Multiple tables in a relational database can be sent and received simultaneously;

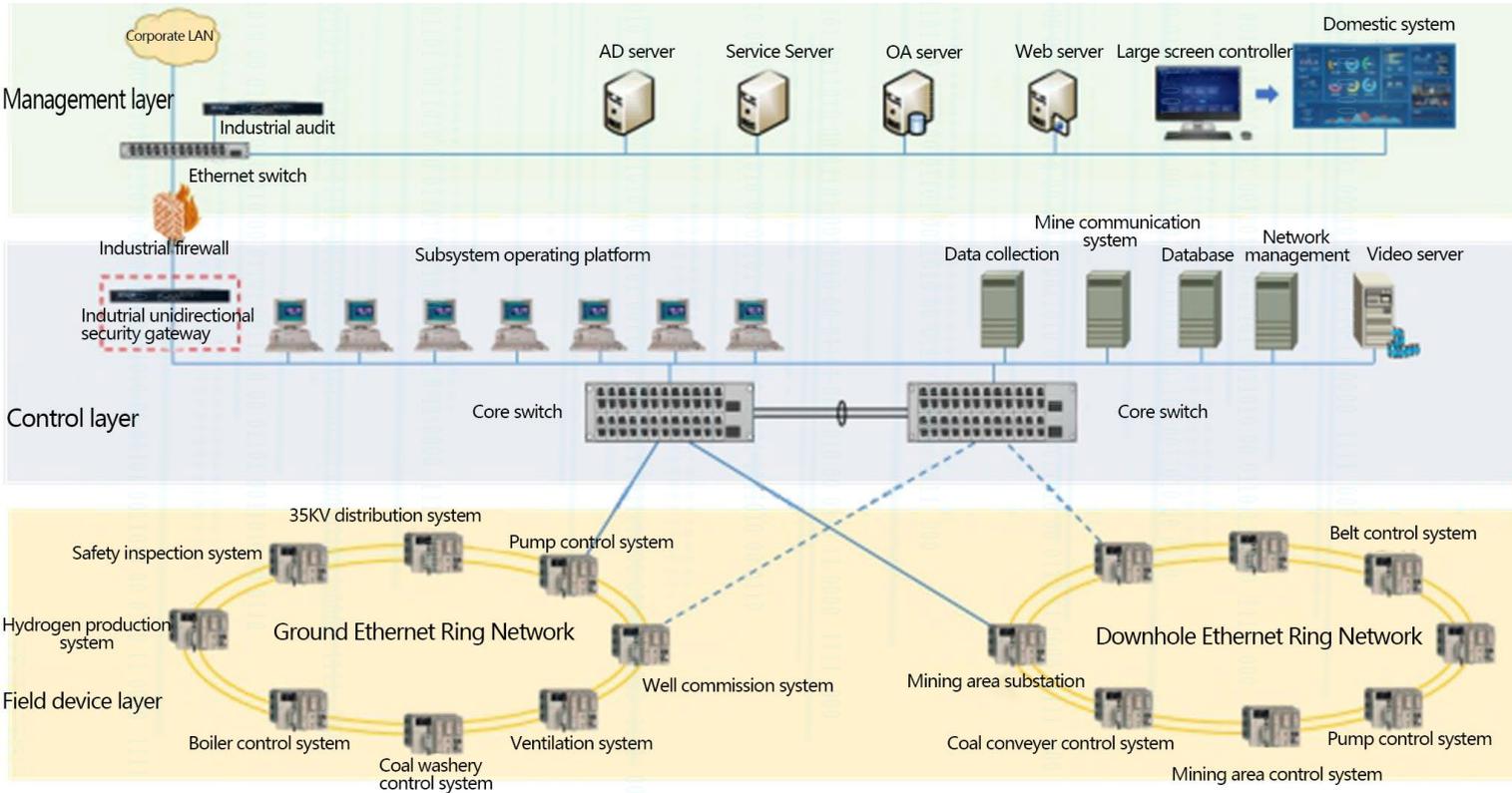
Database Synchronization

- Supports multiple synchronization modes (such as mirroring first and then incremental and incremental). The synchronization mode supports unidirectional and bidirectional synchronization.
- Supports data synchronization between homogeneous databases and heterogeneous databases, without modifying the database table structure;
- Supports table level and field level synchronization.
- Enable or disable synchronization of specified fields.
- Can respectively define the added, modified data transmission;
- Conditional transmission based on the specified field value;
- Supports large field data synchronization exchange, including BLOB, CLOB, and Long.
- Support synchronization of the same table structure between different database types;
- Supports synchronization of similar table structures in the same database and the same field types.
- Support synchronization of the same field type in similar table structure of different database types;

Product Features

- Database synchronization supports large fields and more than 1G fields.
- Database synchronization supports spatial database, spatial field;
- Support hundreds of millions of levels of data database synchronization
- Supports flexible database conflict handling policies. When keyword data conflicts occur, the following options are available:
overwrite/discard;
- insert, update, and delete data transfers can be defined separately
- Supports database synchronization and real-time log recording, and provides log audit and query.
- Database Access
- It provides secure access to mainstream databases such as Oracle, DB2, SyBase, SQL Server and MySQL, and supports domestic Dameng, Renmin Jincang, NANDA General and other databases, and realizes the secure transmission of database and table contents between internal and external networks.
- Supports the client to securely access the database server on the other side of the network.
- Support SQL statement control;
- Supports independent start and stop management of tasks, which does not affect the running of other tasks in database synchronization.
- Supports user-defined access control over source, destination, local, and port addresses.
- Support the access control of database database names and database tables, according to the corresponding relationship between users and database tables, filter the corresponding database operations;
- Support access period control; Provides database access user name filtering and control; Provides database access logs.

Application Scenarios



In order to improve the security of the production control system, AVCOMM industrial Unidirectional Security Gateway is deployed between the OT and IT to achieve the physical protection between the automatic industrial ring network and IT. At the same time, whether the collected data and production data can be transmitted to the IT in unidirectional.