SINEMA Server - Making Your Network Transparent

SIMATIC NET

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Network failures not only prevent plant operators from accessing field devices, but often also cause a communication interrupt between the field devices. This, in the worst case, can bring production to a standstill. Using the SINEMA Server Network Management System specially developed for industry, such problems can be detected and remedied at an early stage.

The number of nodes of PROFINET/Ethernet-based devices in production networks is continuously rising. Time-consuming troubleshooting in large industrial networks during commissioning or a production standstill are unforeseen costs that must be avoided. This is why network transparency resulting from continuous diagnostics of PROFINET/Ethernet-based production networks is a feature of every efficient production plant today.

With an appropriate network management system such as SINEMA Server from Siemens, which has been specifically developed for industrial applications, problems can be detected at an early stage and corrective measures implemented in good time.
During operation, a single failure in a network can cause an avalanche of alarms from various interconnected network nodes. It is essential to connect information about the topology with the diagnostic values of the individual network nodes (including SIMATIC and PROFINET diagnostics), so that the location and cause of the network fault can be identified and rectified immediately. A complete physical map of the network enables the possible effects of cable and device errors to be analyzed. This is helpful when planning high-availability applications.

This commonly used technique, which has been an essential component of network availability in the IT world for a number of years, is now a must in the production environment.

The SINEMA Server software, with its automatic topology detection, continuous network monitoring and extensive PROFINET diagnostic and reporting functions, ensures maximum transparency in the industrial network.

The key characteristic features at a glance

- Ease of operation
- Automatic detection of all components in the network
- Clear representation of the network topology
- Event-based alarm system for transparent display of the network diagnostics
- SIMATIC diagnostics (S7-300, S7-400)
- PROFINET diagnostics
- Standardized network documentation (reports), even over longer periods
- Adaptable user interfaces
- Access via standard web browsers
- Cross-server "Server Overview" status view
- Export of data via CSV for cross-server evaluation
- Profile concept for the integration of all network nodes
- HMI connection via URL and OPC server
SINEMA Server
The most important functions at a glance

Intuitive operation

SINEMA Server is network management for industry. It was developed with the emphasis on functions that are highly important in the industrial environment. The well-designed user interface enables intuitive operation. The user is able to monitor the network in a very short time. Costly, time-consuming IT training is not necessary.

Automatic device detection and generation of the network topology

SINEMA Server uses Discovery and Basic Configuration Protocol (DCP) and Simple Network Management Protocol (SNMP) as well as PROFINET diagnostics to automatically detect PROFINET and Ethernet devices in the network. The detected devices are displayed graphically in a web browser. This enables the maintenance personnel of process and production plants to monitor the current status of the devices and their connections (topology) at all times without the need for complicated configuration. Additional components (from any manufacturer) can be flexibly integrated into SINEMA Server, analyzed and monitored based on the data they provide.

A detailed representation of devices is offered for Siemens automation components. These include, for example, network components such as the SCALANCE X/RUGGEDCOM Industrial Ethernet switches, controllers such as SIMATIC S7 and the corresponding communication modules. Other components are the 24 V uninterruptible power supply SITOP PSU8600, identification systems and drive systems such as SIMOTION or continuous gas analyzers such as SIPROCESS GA 700 at the field level.
User-specific topology display

SINEMA Server gives the user the option of displaying network nodes in any additional arrangement in addition to the automatically generated topology display. These user-specific topology displays can also be supplemented with background displays (e.g., building or plant layouts). This means that, in the event of a fault, the relevant network components can be found more quickly and then replaced or repaired as necessary.

User-defined display

SINEMA Server enables users to be assigned different roles (for example, administrator, maintenance staff, etc.). For this purpose, the IT administrator must define different groups which have the corresponding rights and views assigned to them. This makes it possible for several persons with different roles to work with SINEMA Server at the same time.

Event-triggered alarms

Continuous, immediate monitoring of the network requires that network alarms are detected immediately and the user is promptly notified. For this reason, SINEMA Server offers event handling that acquires and processes all reports of events in the network. SINEMA Server thus provides the user all the important event information concerning the network.

Easy-to-understand network reports

Diagnostics of a network covers not only the current status of the network, but also the analysis of the historical values. SINEMA Server saves all the values that are read from the network components in a database. These can then be filtered and evaluated based on easy-to-understand reports. All the historical events can then be analyzed and used to prevent future failures.
Diagnostics via Web browser

Access to network diagnostics should not be localized, especially in the case of expansive networks. SINEMA Server has therefore been developed on the basis of server architecture. This supports access to the network management software via commonly used Web browsers. The network to be tested can then be diagnosed from any location of choice. This allows the network diagnostics tasks from several subsystems to be bundled in a control room.

Integration in HMI/SCADA/PCS 7 systems

Network diagnostics must be integrated in the HMI/SCADA solution for the plant to ensure that all information is available at a glance. SINEMA Server offers full integration of the topology by means of the Web browser. All the parameters, such as alarms and faults, can also be transferred via the integrated OPC interface. This enables the user to integrate network diagnostics into HMI/SCADA systems with minimal engineering outlay.
Adaptable device profiles

Especially for network components of third-party suppliers that are displayed by SINEMA Server using standard SNMP information, the user has the option of optimizing the device presentation by means of the profile concept. In addition, the profile also enables the querying of device-specific data to be set up via SNMP. SINEMA Server can therefore also optimally monitor industrial networks with devices from different manufacturers.

Adaptable configuration limits with up to 50,000 network nodes

Different license versions of SINEMA Server can be selected based on the size of the network. Just one installation of the SINEMA Server can monitor large networks with up to 500 nodes. With extremely large production networks, SINEMA Server is able to display up to 100 additional SINEMA Servers. For example, individual production cells can be monitored centrally by a single SINEMA Server station.
Network management with maximum transparency

› Details and benefits
› The most important features – presented in vivid animations

Security information
Siemens provides products and solutions with industrial security functions that support the secure operation of plants, solutions, machines, equipment and/or networks. They are important components in a holistic industrial security concept. With this in mind, Siemens’ products and solutions undergo continuous development. Siemens recommends strongly that you regularly check for product updates.

For the secure operation of Siemens products and solutions, it is necessary to take suitable preventive action (e.g. cell protection concept) and integrate each component into a holistic, state-of-the-art industrial security concept. Third-party products that may be in use should also be considered. For more information about industrial security, visit http://www.siemens.com/industrialsecurity.

To stay informed about product updates as they occur, sign up for a product-specific newsletter. For more information, visit http://support.automation.siemens.com.

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