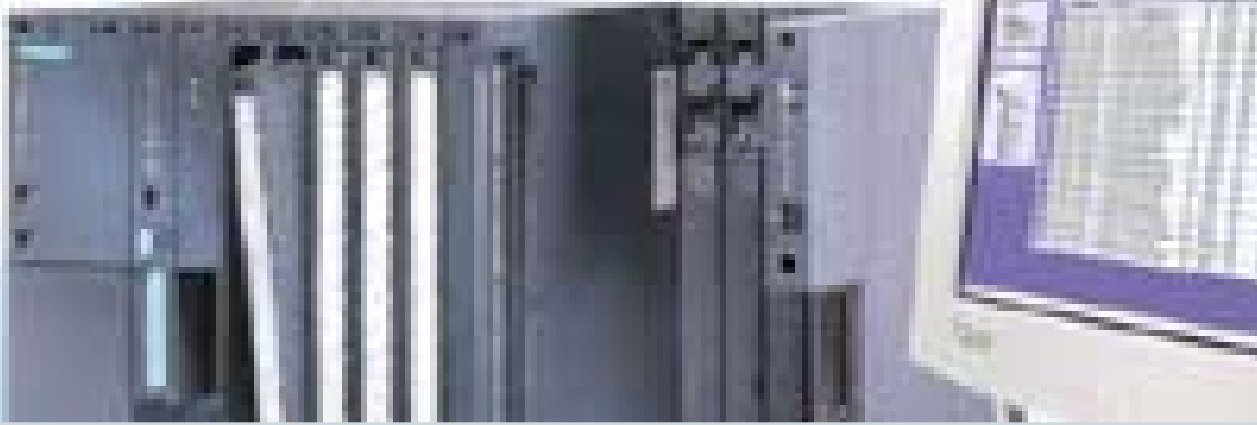




SICAM eRTU – Your Entry to Telecontrol Technology with Extended Functionality

Power Transmission and Distribution

SIEMENS

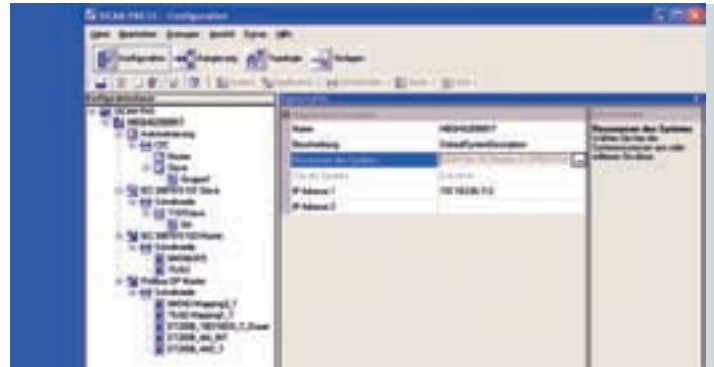


The **Comprehensive** Solution

SICAM eRTU offers all you need for telecontrol, and plenty more besides

Classic telecontrol and automation – for years, that is what proven SICAM technology has stood for. It has typically meant straightforward power automation on every voltage level from low to extra high, for industry, municipalities and utilities alike.

With SICAM eRTU, we offer you a product with extended functionality. In addition to the complete range of RTU functions, it provides access to the entire SIMATIC automation and process control features and connects you with the IT world through the SICAM Diamond interface. The advantage: System and process data for monitoring and diagnosing your installation is now at your disposal anywhere, anytime. Optimally adapted to current process requirements, the SICAM eRTU offers combined centralized and distributed process interfacing. Thanks to uncomplicated automation functions that can be configured graphically, the SICAM eRTU meets all functional demands.



Eight **Advantages** of a Good Decision – SICAM eRTU

- 1 | International standards are the norm**
Everything matches and everything is open: Standards save you time and effort – and mean that your investment is secure.
- 2 | Safe from the moment you take off**
An extensive safety concept ensures high availability and low maintenance costs – from self-monitoring of the modules through 'self-healing' of the system to no forced ventilation for the hardware.
- 3 | System-wide automation, protection and control**
All functions of the substation control and protection with distributed intelligence and information processing are based on identical standards – an ideal way to utilize synergy.
- 4 | Simple input suffices**
From process interfacing through parameterization of the communication connection to configuration of the automation functions, every item of information is stored in the central database, thus dispensing once and for all with double inputs and errors resulting from inconsistent data.
- 5 | Configuring instead of programming**
Configure by clicking or by Drag & Drop – using your technical knowledge, but without the need for additional programming skills. You work with system-tested function blocks that cover a wide range of switchgear-specific tasks. That's how easy it is.
- 6 | Information anywhere, anytime**
Both in your system and also from a remote location, all process and system information is always at your disposal in a simplified and clearly arranged form. This gives you security and enables you to take the right decisions swiftly and reliably.
- 7 | Open to the PLC world**
In addition to the built-in RTU functions, SICAM eRTU offers the advantages of integrating classic PLC solutions into energy automation, based on SIMATIC S7 standards.
- 8 | Decades of experience included**
With Siemens, more than 70 years of worldwide experience in process automation and telecontrol including substation control and protection add to another twenty years of experience in power automation: Experience you can rely on (and benefit from!).

Safety and Efficiency – as well as **Simplified Handling**



System states can be analyzed quickly and reliably with clear and well-arranged diagnostics, both on-site and remotely. With this simple functionality that has been well thought-out in terms of RTU requirements, the SICAM eRTU is the basis for dependable and cost-effective operation of a substation. With the flexibility of IT included, SICAM eRTU is a sound investment for the future.

The system solution that helps you go faster

For telecontrol, SICAM eRTU offers you pre-configured functionality, meaning all you have to do is select the parameters. You arrive quickly at a smooth-running project process. On the modules and in the IEDs, you parameterize their typical functions. By means of data exchange, for example in XML format, all information is available everywhere in the system without doubling the data entry. Your SICAM eRTU is fully operable after network control center communication has been parameterized. You can configure the automation functions freely to exploit all the possibilities offered by this technology – from simple generation of group messages to complex switching sequences.

Using the SIMATIC system base, SICAM eRTU provides all SIMATIC functions in addition to the classic telecontrol operations.

Sophisticated technology is the norm

SICAM eRTU is cost-effective due to the modular design. Regardless of what your basic configuration looks like today, tomorrow you can still add options to suit the needs of a specific project. Your investment remains secure thanks to using standards extending all the way from the hardware basis through the communication standards to the operating system. The SIMATIC S7-400 programmable logic con-



SIMATIC: A great name in the world of automation ...



Power automation with SICAM uses this worldwide standard ...



... and, with the SICAM eRTU and SICAM Diamond, provides a fresh impulse for link into the IT world.

troller with its versatile communication capabilities and system-wide functionality forms the basis for the powerful SICAM eRTU system solution.

All systems under control

Especially when systems are distributed over a wide geographic area, users need to be able to monitor and control them from a central location. This, and rapid reaction to possible incidents, contribute essentially to cutting the cost of operation. The SICAM eRTU is an optimized system solution for these requirements. It combines the specific functions of a telecontrol unit with the diversity of a programmable logic controller for spatially distributed process automation.

Simplified solutions for reliable operation

With the safety requirements of power systems in mind, SICAM eRTU ensures allround 2.5 kV isolation. This dispenses with the need for complex interposing relays and extensive wiring which are not only costly to install, but are also a constant source of interference during subsequent operation.

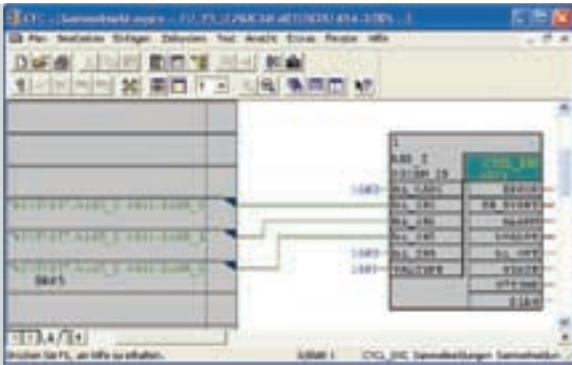
Messages are acquired in real time with a resolution of one millisecond, thus ensuring easy, quick and

reliable fault analysis. In addition to its high availability, SICAM eRTU detects disturbances in its own system automatically.

All modules feature a continuous self-check down to the input/output level and all periphery modules can be swapped without switching off the system. Thanks to the well thought-out architecture of SICAM eRTU, faults cause only a partial impact or lead to a safe system state. These are but a few examples of the system's high standard of reliability and availability.

Convincing experience

Today, more than 2,000 SICAM systems are in operation worldwide. Combined with their technology, our expertise and global presence make up an ideal recipe for satisfied customers and fruitful cooperation. This begins with project planning and design, and extends all the way to project management and after-sales support. This is a task we gladly take on at one of our Competence Centers. It goes without saying that our services include state-of-the-art production and maximized quality in our products, systems and processes. What's more: Advice and assistance are available via our hotline.



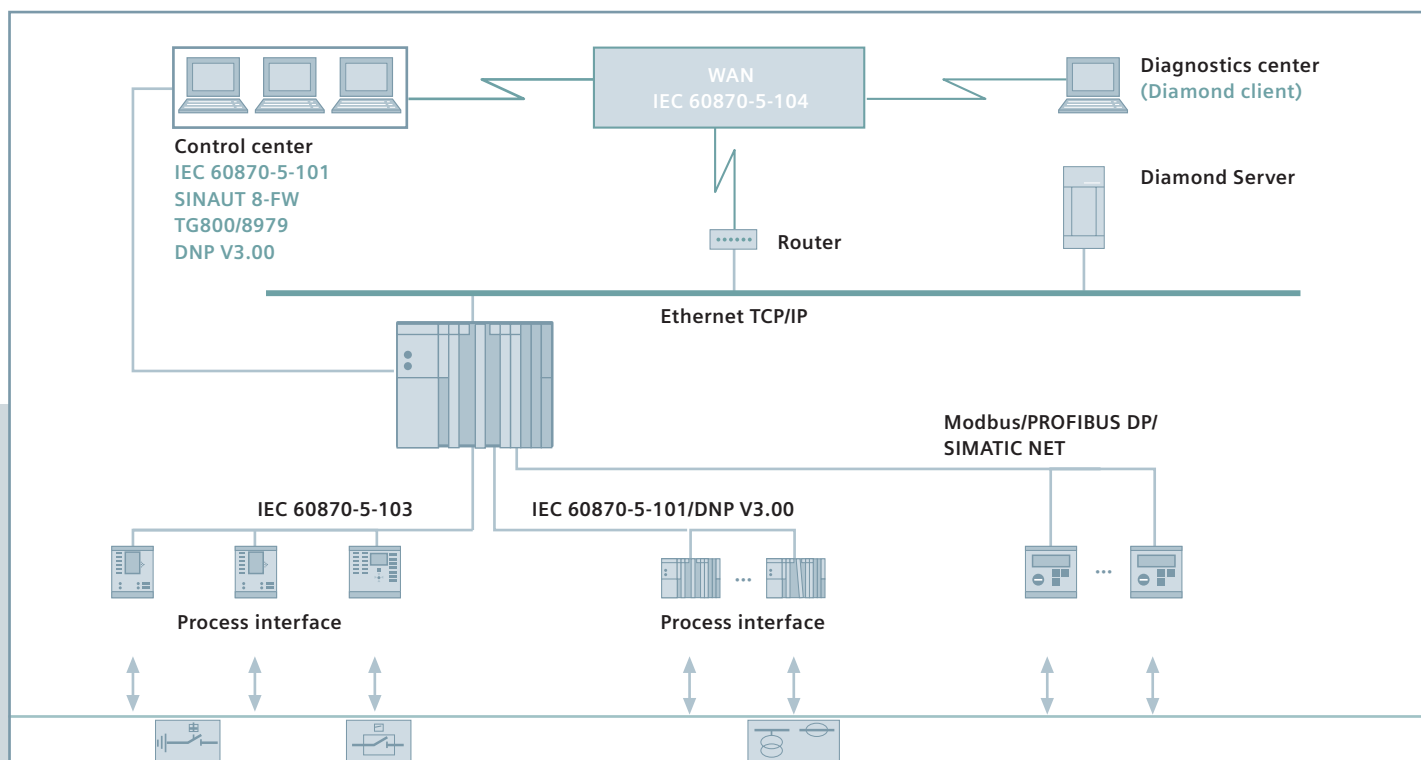
Be it telecontrol, automation or interfacing to the IT world via an Intranet or the Internet – with SICAM eRTU you are optimally equipped. This is because SICAM eRTU uses the communications standards of this world.

The Right Connection

SICAM eRTU will link you up to the automation and IT world

For remote data transfer to power network control systems...
 the system relies on internationally standardized telecontrol protocols to handle the considerable volumes of data between a substation and a number of control centers, even over several channels and with redundancy.

- The standard international protocol IEC 60870-5-101 with open communication and high data security
- The standard international protocol IEC 60870-5-104 for interfacing the station control level to the network control center by TCP/IP via a wide area network (WAN) connection
- The widespread DNP V3.00 protocol, a de facto standard in many parts of the world
- The TG800 and TG8979 telecontrol protocols, which are also well known in many parts of the world
- And the widespread SINAUT® 8-FW structure



For connecting RTUs and IEDs ...

up to 96 IEDs and RTUs can be connected via internationally standardized and quasi-standard protocols using the multi-communication processor (developed specially for tele-control) and standard SIMATIC communication processors. With its reliance on standards in communication, the SICAM eRTU is a secure investment.

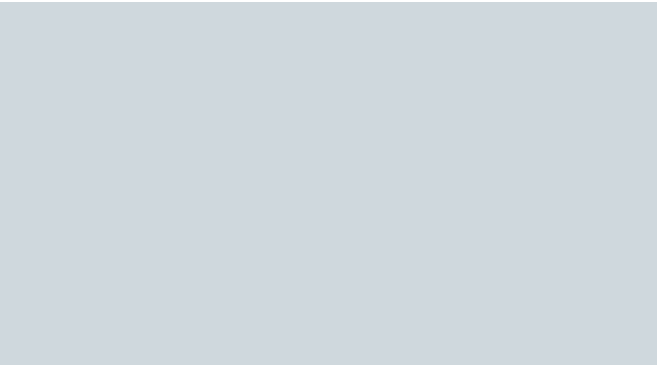
- IEDs can be connected to the SICAM eRTU by means of IEC 60870-5-103 and the DNP V3.00 protocol.
- Subordinate telecontrol devices can be connected to the SICAM eRTU by means of IEC 60870-5-101 and the DNP V3.00 protocol.
- With the SICAM eRTU, you can exploit the communication possibilities offered by the SIMATIC world, for example to connect IEDs via PROFIBUS DP and the Modbus-RTU protocol.

The PROFIBUS is supported by more than 1,000 manufacturers throughout Europe. As the most widespread field bus system in Europe, it has also increasingly asserted itself in the rest of the world.

For interfacing to the IT world of the World Wide Web ...

the TCP/IP-based Industrial Ethernet protocol builds a bridge to the IT world. This is one of the standard protocols of the SICAM eRTU. Internationally, this technology is the leading industrial network and also offers excellent connectivity to the office world. If required, the SICAM eRTU provides a secure interface to the World Wide Web via SICAM Diamond, thus making process and system data available to operators anywhere and anytime for monitoring and diagnostics.

Furthermore, with SICAM eRTU you can use the full capacity of the communication tools built into the SIMATIC process automation.



Everything about SICAM eRTU is tailored to be simplified, uncomplicated and reliable – ranging from the engineering software to system and process diagnostics. This saves you time and money, all the way from planning to operation.

Comfortable and **Safe**

with SICAM eRTU you have access to important information everywhere

SICAM plusTOOLS adapts to your way
SICAM plusTOOLS is a configuration tool that takes 'ease of use' literally, making parameterization of your system convenient as never before.

The SICAM plusTOOLS configuration system provides a graphical user interface which makes it possible, in a prompted dialog, to describe the system data in the user's language and simultaneously allows a flexible process of configuration and parameterization. You are clearly guided through menus on the basis of the user-friendly Windows operating system. The graphical user interface makes everything much more comprehensible.

Welcome to the world of digital power automation

When you consider that the automation costs you incur are mostly attributable to software engineering, you soon realize what savings you can achieve with SICAM plusTOOLS. Standards such as Windows, Industrial Ethernet and PROFIBUS simplify cooperation between industrial and switchgear control. A new, common world is created: SICAM digital power automation.

Information arrives where it is supposed to go

If required, all information (in both the monitoring and the command direction) can be processed further before being passed on to its respective destination. By contrast, information that does not require further processing is passed through directly. Firstly, this minimizes both the time needed and the risk of errors and, secondly, users can easily perform application-specific automation functions.

Function blocks for easy automation

For this purpose, SICAM plusTOOLS features a graphical editor. This makes it easy to create user-specific functions by the CFC (Continuous Function Chart) method and clearly presents the links of the CFC blocks for the user. These CFC blocks consist of system-tested function blocks conceived especially for power automation, and make automation easy for users. Commands, messages, measured values and counted values can be combined graphically with timing conditions, logical conditions and computing blocks, etc.



Here are a few examples:

- Deriving group messages from single messages
- Deriving messages and commands
- Limit monitoring
- Switching sequences
- Monitor and control

Faster configuration

Regardless of whether you are configuring telecontrol or automation, all functions take recourse to one common database. Hardware is configured once only and on the basis of a clearly arranged hardware catalogue.

You can intuitively control the necessary settings with the aid of clearly arranged tabs. Thanks to an exchange of data between the DIGSI configuration tool for SIPROTEC 4 IEDs and within SICAM plusTOOLS (e.g. by means of XML files), users need only once enter the interface data for the IEDs and substations.

That is to say: Configuring telecontrol systems with automation functions using just one standardized tool saves you both time and money.

SICAM Diamond monitors data traffic

SICAM eRTU signals and reports operating states. By means of SICAM Diamond, all system and process information can be made available both in the substation itself and also from a

remote location. To this end, the SICAM Diamond software is installed on a station computer connected to SICAM eRTU, either via the MPI (Multi Point Interface) integrated in the CPU or via an Industrial Ethernet.

SICAM eRTU automatically provides all diagnostic and process information to the SICAM Diamond server. Users do not therefore have to perform any further parameterization after installing and configuring the SICAM Diamond software.

So far away – and yet so near

If access from a remote location is required, the SICAM Diamond server can also be configured as a Web server. It goes without saying that all aspects relevant to security were taken into consideration during creation of the SICAM Diamond software, thus making unauthorized access well-nigh impossible. For example, users are admitted and passwords are assigned exclusively on the station computer and only by the system administrator. So, authorized users have access at all times to the status of the switchgear and of the SICAM eRTU system:

- Display of up-to-date diagnostic and hardware information
- Display of SICAM information in the monitoring direction
- Control of selected switching devices
- Event list and momentary system status

This means fast and targeted analysis during commissioning and troubleshooting, even from a remote location.

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The information in this document contains general descriptions of the technical options available, which do not always have to be present in individual cases. The required features should therefore be specified in each individual case at the time of closing the contact.

Subject to change without prior notice

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