SIEMENS
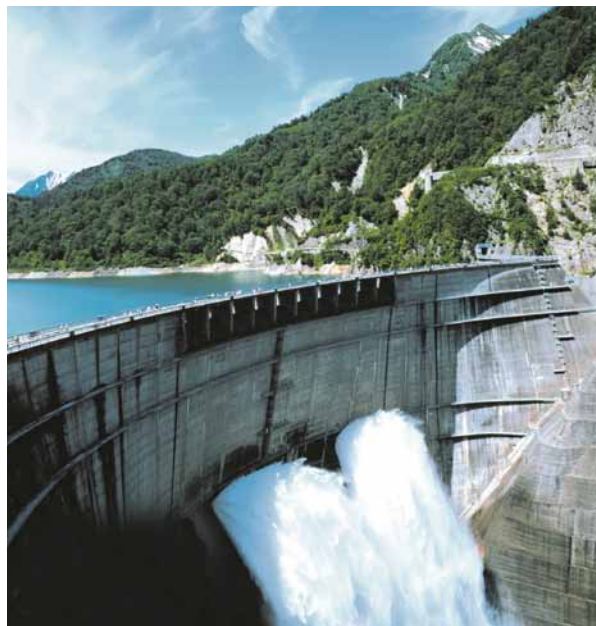
Automation Unit
SICAM TM

SICAM – flexible for all applications

Answers for infrastructure and cities.

Outstanding performance – SICAM TM

Rising demands for efficiency in nearly all processes require increasingly innovative automation solutions to achieve a more comprehensive and safer utilization of primary equipment. A prerequisite for this is automation systems such as SICAM TM with various communications interfaces and peripheral elements that can be expanded by adding modules.

Automate simply – with SICAM TM
Highly complex yet fully transparent automation solutions are no problem with SICAM TM, thanks to a system concept that makes it possible to combine automation and telecontrol in one device.
Its intelligent terminal modules is designed for easy mounting on 35 mm DIN rails.

Versatility is essential
Wide transfer interfaces are systematically reduced with SICAM TM through direct connection of actuators and sensors with wire cross-sections of up to 2.5 mm². Binary input and output modules up to DC 220 V also open up savings potential at interface level. For decentral input/output, individual modules can be located remotely as much as 200 m away from the master control element.

SICAM TM puts everything on one card
Configuration and all parameters of the SICAM TM are stored on a flash card. This means that in the event of a fault, a replacement device can be put into operation in seconds – without a PC or resetting of parameters. This advantage, together with the comprehensive remote diagnostic functions, helps you minimize downtimes.

SICAM TM understands your system
You can use a wide range of different media for local and long-distance communication. SICAM TM functions with IEC standards 60870-5-101/103/104 and IEC 61850 for consistent addressing from acquisition to output. Especially noteworthy is the possibility of offering client and server functionality on only one Ethernet interface. This interface was certified by an independent laboratory to verify interoperability. Numerous third party protocols also facilitate seamless integration in existing automation networks and the protection of existing investments.
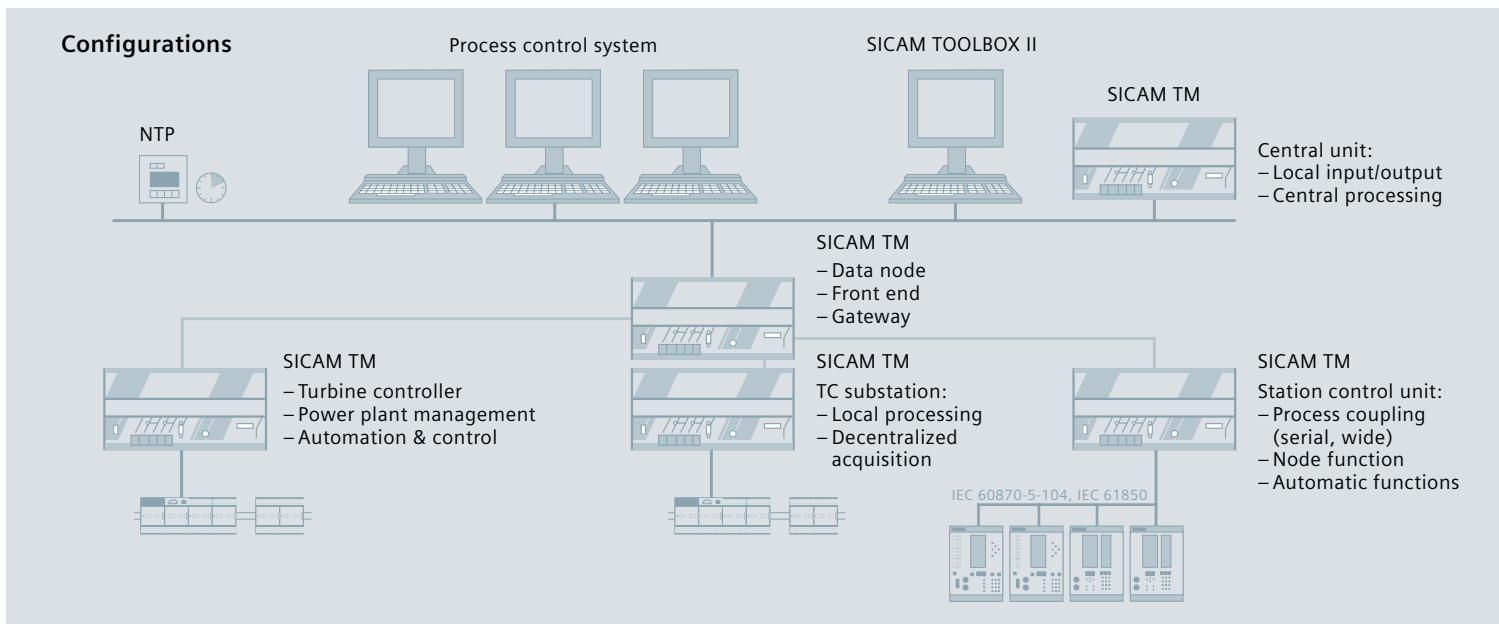
SICAM TOOLBOX II:
Consistently simple engineering
All engineering activities, from system diagnostics to online testing, can also be carried out extremely efficiently from remote locations. The close interfacing with design tools such as ELCAD ensures consistent documentation of the entire system, while the user programs for closed- and open-loop control functions are created in CAEx plus according to IEC 61131-3, thereby minimizing the time and effort needed for training.
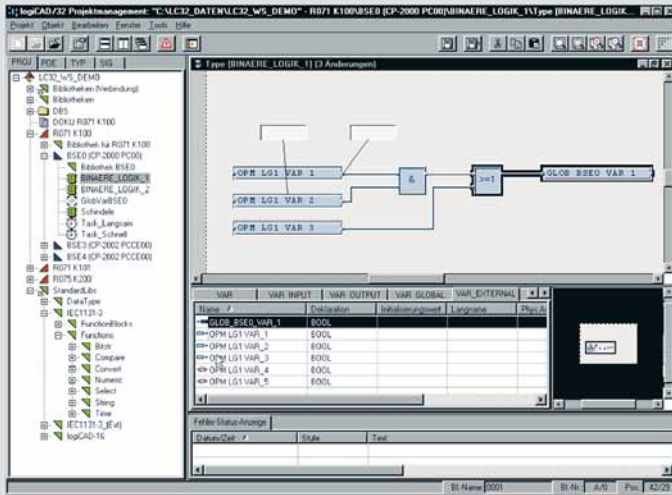
SICAM TM – The advantages at a glance

- SICAM TM offers you automation with integrated telecontrol for hydroelectric power stations (such as the turbine controller), distribution and transmission of electric power, oil and gas pipelines, traffic (railroads, tunnels, etc.).
- SICAM TM provides powerful communication with up to four serial interfaces, serial and LAN/WAN communication according to IEC 60870-5-101/103/104, IEC 61850, Profibus DP, and many third-party protocols.
- Simple engineering thanks to the creation of open-loop and closed-loop control functions according to IEC 61131-3, object orientation, and consistent data management, as well as the option to perform all engineering tasks from remote locations as well.

- Simplified service through storing of parameters and firmware on flash card; thus modules can be replaced via plug & play, even without a tool.
- SICAM TM, the intelligent terminal on 35-mm rails: direct connection of actuators and sensors through wire cross-sections of up to 2.5 mm^2, distributable peripherals, and binary input/output also for DC 110/220 V.

Process control system

SICAM TOOLBOX II

NTP

SICAM TM
Central unit:
– Local input/output
– Central processing

SICAM TM
– Data node
– Front end
– Gateway

SICAM TM
– Turbine controller
– Power plant management
– Automation & control

SICAM TM
TC substation:
– Local processing
– Decentralized acquisition

SICAM TM
Station control unit:
– Process coupling (serial, wide)
– Node function
– Automatic functions

IEC 60870-5-104, IEC 61850

Practical applications of SICAM TM

A SICAM TM is an automation unit within the system family, consisting of the master control element and the peripheral elements that can be expanded by adding modules and arranged in distributed locations.

Master control element
- Up to four communications interfaces via insertable serial interface modules for:
  – serial communication (point-to-point, multipoint, and dial-up traffic)
  – LAN/WAN (Ethernet)
  – Profibus DP
- Interfacing of up to 16 peripheral elements via the serial Ax-1703 peripherals bus (16 mbps)
- Function diagram design according to IEC 61131-3 with CAEx plus for open-loop and closed-loop control functions
- Configurable telecontrol functions with and without time tagging
- Time synchronization via minute pulse, time signal receiver, serial communications link or NTP server (LAN/WAN)
- Parameter setting, diagnostics, and testing by SICAM TOOLBOX II, both locally or from remote locations
- Storing of parameters and firmware on flash card

Peripheral element
- One peripheral element consists of a power supply, peripheral interface and up to eight I/O modules
- Direct connection of the signal cables via pull-off screw terminals

- Acquisition, processing, and output of process data
- Exchange of process data with the master control element via the serial Ax-1703 peripheral bus

Technical data
- Protocols: IEC 60870-5-101, 103, 104, IEC 61850, Profibus DP, SAT SSI, SAT PCMBA, Modbus, DNP 3.0, IEC 61107, ...
- Closed- and open-loop control function: 512 kB for user program, about 50,000 variables and signals, of which 2,000 buffered, 250 buffered setpoint values
- EMC: IEC 60870-2, IEC 60255, IEC 61000, EN 50082, ...
- Supply voltage:
  Master control element: DC 24–60 V +30 %/–20 %
  Peripheral element: DC 24–60 V +30 %/–25 %;
  DC 110–220 V +25 %/–25 %
- Temperature range:
  Master control element: –25 ... +65 °C (depending on equipment)
  Peripheral element: –25 ... +70 °C
- Dimensions:
  Master control element: 306 x 155 x 75 mm
  Peripheral element: 630 x 127 x 72 mm = fully configured peripheral element with 8 I/O modules

Technical data

	Type designation	Order designation	Description
Master control element	CP-6014/CPCX65	6MF11130GA140AA0	System functions, processing and communication
Flash card	Flash card	6MF12131GA050AA0	Memory card for parameters and firmware
Peripheral elements			
Power supply	PS-6630	6MF11130GG300AA0	Power supply module DC 24–60 V EMC+
	PS-6632	6MF11130GG320AA0	Power supply module DC 110–220 V EMC+
Periphery interfacing	PE-6410	6MF11130GE100AA0	Periphery interfacing for A x 1703 electrical peripherals bus
	PE-6411	6MF11130GE110AA0	Periphery interfacing for A x 1703 optical peripherals bus
	PE-6412	6MF11130GE120AA0	Periphery interfacing for A x 1703 peripherals bus 2 x optical*)
I/O modules	DI-6100	6MF11130GB000AA0	Binary input 2 x 8, DC 24–60 V
	DI-6101	6MF11130GB010AA0	Binary input 2 x 8, DC 110–220 V
	DI-6102	6MF11130GB020AA0	Binary input 2 x 8, DC 24–60 V 1 ms
	DI-6103	6MF11130GB030AA0	Binary input 2 x 8, DC 110/220 V 1 ms
	DI-6104	6MF11130GB040AA0	Binary input 2 x 8, DC 220 V
	DO-6200	6MF11130GC000AA0	Binary output transistor 2 x 8, DC 24–60 V
	DO-6212	6MF11130GC120AA0	Binary output relay 1 x 8, DC 24–220 V, AC 230 V
	DO-6220	6MF11130GC200AA0	Command output basic module
	DO-6221	6MF11130GC210AA0	Command output basic module with measurement
	DO-6230	6MF11130GC230AA0	Command output relay module
	AI-6300	6MF11130GD000AA0	Analog input 2 x 2, ± 20 mA/± 10 mA/± 10 V
	AI-6307	6MF11130GD070AA0	Analog input 2 x 2, ± 5 mA
	AI-6308	6MF11130GD080AA0	Analog input 2 x 2, ± 1 mA/2 mA
	AI-6310	6MF11130GD100AA0	Analog input 2 x 2 Pt100
	AO-6380	6MF11130GD800AA0	Analog output 4 x ±20 mA/±10 mA/±10 V
	TE-6420	6MF11130GE200AA0	Speed measurement 2 x 2 5/24 VDC/NAMUR
	TE-6450	6MF11130GE500AA0	Position measurement 2 x 2 SSI/RS422
Direct transformer input	AI-6303	6MF11130GD030AA0	Direct transformer input (4 x 220 V, 3 x 6 A)
	AI-6304	6MF11130GD040AA0	Direct transformer input (4 x 220 V, 3 x 6 A) 2 x optical*)
Bus Interface Module	CM-0843	6MF11110AJ430AA0	A x 1703-Bus interface electrical
	CM-0842	6MF11110AJ420AA0	A x 1703-Bus interface 4-way, optical fiber
Cables	T41-252	6MF13040BC520AA1	Patch cable CAT5 3 m
	TC6-203	6MF13130GC030AA1	USB cable 3 m
Protocol elements (hardware)			
CPU (max. 2)	SM-2551	6MF10130CF510AA0	Serial interface processor 2 serial interfaces (SI)
	SM-2556	6MF10130CF560AA0	Network interface Ethernet 10/100TX
	SM-2557	6MF10130CF570AA0	Dual Network interface Ethernet 10/100TX
	SM-2545	6MF10110CF450AA0	Profibus interface
Submodule for SM-2556	SM-0551	6MF10130AF510AA0	Serial interface processor 1 SI (configurable on SM-2556)
Patch Plug (1 x per SI)	CM-2860	6MF12110CJ600AA0	Patch Plug Standard V28, Ethernet
	CM-2869	6MF12112CJ600AA0	Patch Plug Profibus
Accessories			
Modems	CE-0700	6MF11020BC000AA0	V.23 Leased line modem
	CE-0701	6MF11020CA810AA0	VFT channel modem
Converters	CM-0827	6MF11110AJ270AA0	Converter V28/optical
	CM-0829	6MF11112AJ200AA0	Converter RS232/RS422; RS485

*) only in combination with SICAM AK in redundancy configurations