



Automation Component AK 1703 ACP

SICAM 1703 – flexible for all applications

Answers for energy.

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Automation, communication and telecontrol

A high level of functionality and flexibility are the foundation for a successful automation system. Naturally, that also includes comprehensive options for telecontrol, communication and for connecting peripheral equipment. That's certainly the case, at least, with the innovative AK 1703 ACP automation component.

One solution fits all

Thanks to its system concept, the AK 1703 ACP opens up new possibilities for you to automate power supply networks to match your performance and redundancy requirements. Automation, telecontrol and communication functions are combined flexibly and in full compliance with IEC 61850. 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.

You can use the AK 1703 ACP as

- a central unit or telecontrol substation,
- data node or front-end,
- automation unit
 - with autonomous function groups
 - with local or remote peripheral equipment.

Central or remote input/output?

If the AK 1703 ACP is augmented with TM 1703 peripheral elements (up to 200 m away from the central unit) the question "central or remote?" no longer applies, since both are possible.

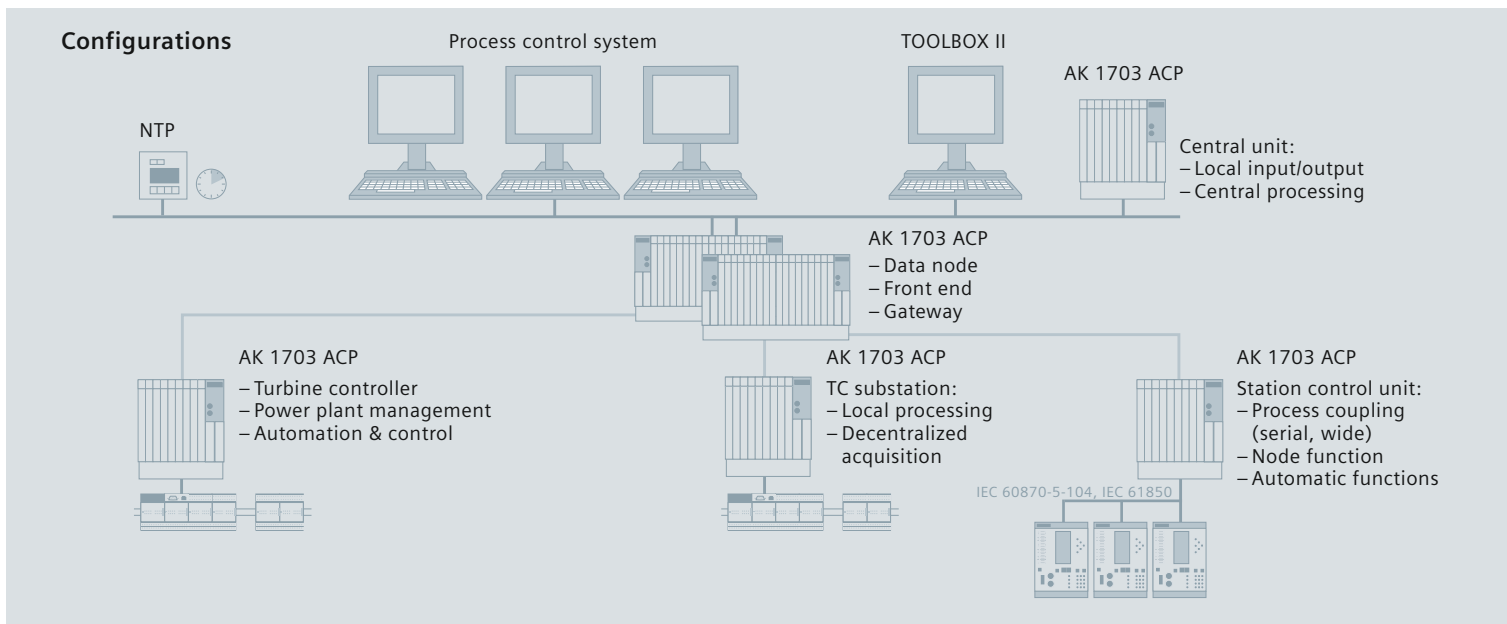
Handover interfaces are systematically reduced by direct connection of actuators and sensors with wire cross-sections of up to 2.5 mm². Meanwhile, binary input and output modules up to 220 VDC open up additional savings potential at the interface level.

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.

Simple replacement: Plug & Play

Configuration and all parameters of the AK 1703 ACP are stored on the 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, in combination with the comprehensive remote diagnostic options, down-times can be reduced to a minimum.



Practical applications of AK 1703 ACP

Architecture

- Multi-processor and firmware principle with 32-bit processor technology
- One master control element with
 - up to 2 communication interfaces
 - automation function
 - connection to the TOOLBOX II engineering system
- Up to 16 additional processing and communication elements
- Up to 66 protocol elements for
 - serial communication (point-to-point, multi-point, dial-up traffic)
 - LAN/WAN (Ethernet)
 - Profibus DP
- Up to 272 peripheral elements

Technical Data

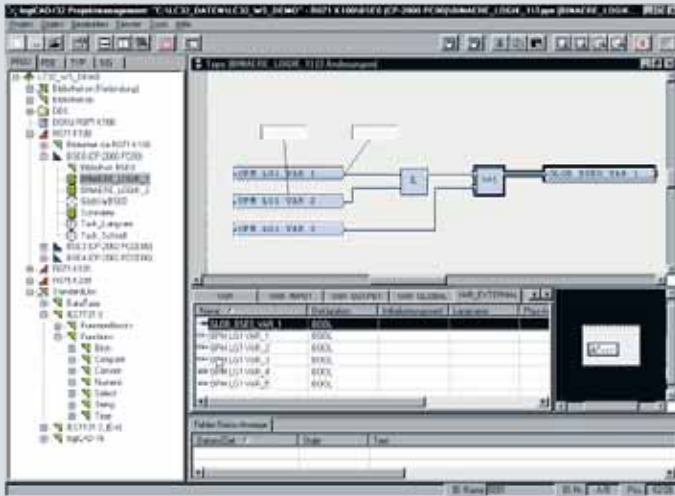
- Protocols: IEC 60870-5-101, 103, 104, IEC 61850, Profibus DP, SAT SSI, SAT PCMBA, Modbus, DNP 3.0, IEC 61107, ...
- Open-loop and closed-loop control functions: 512 kB for user program in each case, about 50,000 variables and signals, of which 2,000 buffered, 250 buffered setpoint values
- EMC: IEC 60870-2, IEC 60255, IEC 60950, IEC 61000, EN50082, CISPR 22, ...
- Temperature range: 0 ... +55°C
- Dimensions (W x H x D):
 CM-2832: 280 x 291 x 285 mm;
 Space required: 400 x 451 x 290 mm
 CM-2835: 483 x 291 x 285 mm;
 Space required: 604 x 451 x 290 mm

Overview of functions

- Node function for building up multi-hierarchical networks with virtually any topology
- Automation functions at all levels of a local or distributed network
- Drawing up a function plan 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)
- Data routing via selective or automatic data flow
- Uniform functionality as per IEC 60870-5-101/103/104 for consistent addressing from acquisition to output
- Scalable redundancy through:
 - duplication of 1 to 5 processing/communication elements
 - duplication of the whole automation unit
- Independent functional groups
- Decentralized archive
- Standby transmission route concept
- Parameter setting, diagnostics and testing by means of TOOLBOX II both locally and from remote locations
- Storage of parameters and firmware on flash card

Technical Data

| | Type designation | Order designation | Description |
|--|------------------|-------------------|--|
| Subrack | CM-2832 | 6MF11130CJ320AA0 | AK 1703 ACP subrack for 9 slots |
| | CM-2835 | 6MF11130CJ350AA0 | AK 1703 ACP subrack for 17 slots |
| Power supply | PS-5620 | 6MF10130FG200AA0 | Power supply 24–60 VDC |
| | PS-5622 | 6MF10130FG220AA0 | Power supply 110–220 VDC, 115–230 VAC |
| Master control element | CP-2010/CPC25 | 6MF10130CA100AA0 | System functions, processing and communication |
| | CM-2837 | 6MF10130CJ370AA0 | Communication/Sys-I/O connection (CP-2010) |
| Flash card | Flash card | 6MF12131GA050AA0 | Memory card for parameters and firmware |
| Peripheral elements | | | |
| Peripheral elements (max. 16) | DI-2100/BISI25 | 6MF10110CB000AA0 | Binary signal input (8 x 8, 24–60 VDC) |
| | DI-2110/BISI26 | 6MF10110CB100AA0 | Binary signal input (8 x 8, 24–60 VDC), 1 ms resolution |
| | DI-2111/BISI26 | 6MF10110CB110AA0 | Binary signal input (8 x 8, 110/220 VDC), 1 ms resolution |
| | DO-2201/BISO25 | 6MF10110CC010AA0 | Binary output (transistor, 40 x 1, 24–60 VDC) |
| | DO-2210/PCCO2x | 6MF10110CC100AA0 | Secured command output 24–60 VDC |
| | DO-2211/PCCO2x | 6MF10110CC110AA0 | Secured command output 110–125 VDC |
| | AI-2300/PASI25 | 6MF10110CD000AA0 | Analog input/output (16 x ±20 mA + 4 x opt. exp ^{*)}) |
| | AI-2301/TEMP25 | 6MF10110CD010AA0 | Analog input 32x Pt100 |
| | MX-2400/USIO2x | 6MF10110CE000AA0 | Signal input/output (24–60 VDC, ±20 mA, + 1 x opt. exp ^{*)}) |
| *) optional expansions | SM-0570 | 6MF10110AF700AA0 | Analog input (2 x ±20 mA, ±10 V) |
| | SM-0571 | 6MF10110AF710AA0 | Analog input (2 x Pt100) |
| | SM-0572 | 6MF10110AF720AA0 | Analog output (2 x ±20 mA, ±1/10 V) |
| | SM-0574 | 6MF10110AF740AA0 | Counting puls input (2 x 24–60 VDC) |
| Connection cable (per peripheral el.) | CM-2890 | 6MF13131CJ000AA1 | Peripheral cable, crimp, 5 m, 100 pole |
| Processing and communication element (max. 16) | CP-2017/PCCX25 | 6MF10130CA170AA0 | Processing and communication |
| | CM-2838 | 6MF10130CJ380AA0 | Communication connection (for each CP-2017) |
| Protocol elements (hardware) | | | |
| CPU (max. 2 per processing and communication element) and 1 on the master control element) | 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 | Profi-Bus 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 |



AK 1703 ACP – The advantages at a glance

Applications

- As telecontrol substation or central unit
- With local or remote peripherals
- As data node, front-end or gateway
- Automation unit with independent functional groups
- For rear panel or 19" rack installation

Comprehensive communication

- Up to 66 serial interfaces for local and remote communication
- Communication (serial, LAN/WAN) as per IEC 60870-5-101/103/104 and IEC 61850
- Numerous third-party protocols available
- Profibus DP

Scalable redundancy

- Component redundancy
- Duplication of processing/communication elements

Simple engineering and maintenance

- Creation of user programs for open-loop and closed-loop control functions as per IEC 61131-3
- Object-oriented engineering
- Consistent data storage
- Engineering also possible from remote locations
- Plug & Play for spare parts by means of flash card
- Storage of parameters and firmware on flash card
- Exchanging of modules without engineering tool

TM 1703: The intelligent terminal

- Direct connection of actuators and sensors with wire cross-sections of up to 2.5 mm²
- Remote installation possible up to 200 m away
- Binary input/output also for 110/220 VDC
- Mounting on 35 mm DIN rail

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