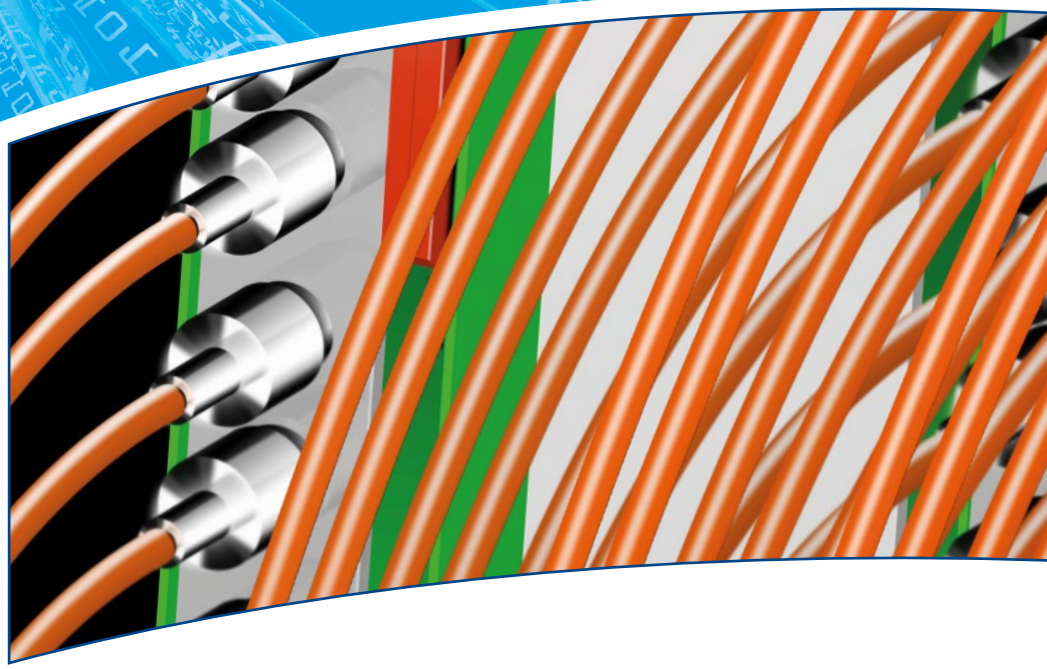
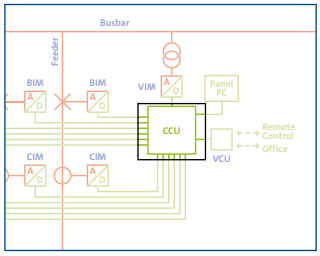
Locamation
smart smart grid solutions

23-EN4

Central Control Unit (CCU 600 series)

Plug and play scalability





The Central Control Unit (CCU) controls all functions

The Central Control Unit (CCU 600 series) is one of the computing devices of SA*Sensor*®. The CCU is an "all-in-one" box, consisting of an "off-the-shelf" Single Board Computer (SBC) and a configurable number of fiber optic interface boards which functionally act as ethernet switch.

The CCU 600 series is a modular unit with the following hardware properties:

- One scalable SBC with (hard) disk
- Selectable number of boards with seven ethernet 100BaseFX ports each

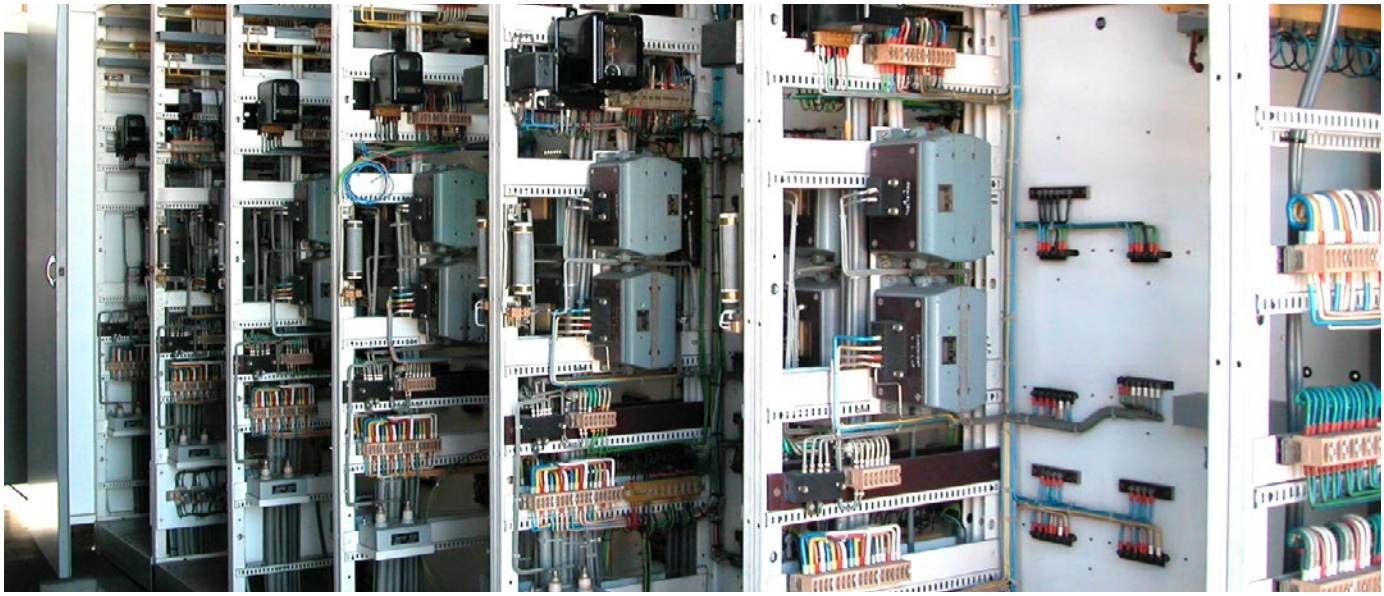
Running the flexible and open software environment

The SBC of the CCU runs the open real-time operating system ARTOS® with SA*Sensor* applications.

SASensor®

Central Control Unit (CCU 600 series)
Plug & Play

SASensor®



SASensor will replace all of this old equipment or, if required, creates a fully redundant system.

Designed for long life

Long life reliability is maximized by design and architecture. There are no mechanical moving parts such as fans and conventional hard discs. Single Board Computers (SBCs) have a relative short economic life. The SBC is a universal part of the control unit which makes it easy to replace by a later version. Life is effectively elongated, and spare parts management is simplified.

"All-in-one box" device

The CCU600 series is modular and can be sized for any substation, but functionally remains "one box", running selectable functions. The CCU exclusively communicates using fiber optic ports. The CCU supports functional interfaces with IEC61850-8-1 and IEC61850-9-2LE devices.

Plug and play

The SA*Sensor* system hardware is designed from the viewpoint of the substation plant engineer. Hardware is replaced in a plug and play manner, no special electronics training is required. Software is separated from the hardware so no special requirements are required here either.

Flexible performance

Functional performance requirements are translated to the type of computer that is most suitable. As performance of computers is constantly changing, no longer becomes an issue for substation automation applications.

Redundancy required? Just duplicate the CCU!

Since the CCU contains the selected functionality in its software, it is very easy to duplicate the system simply via a second identical CCU. Even though the interface devices are singular, their Ethernet communication ports can become redundant with a double set of fiber optic cables; one set for each CCU connection. This creates a complete redundant system. In a redundant system one CCU can be turned off for repair or replacement without any degradation of functionality or shutdown of the substation. The other CCU simply continues to control the SA*Sensor* system.

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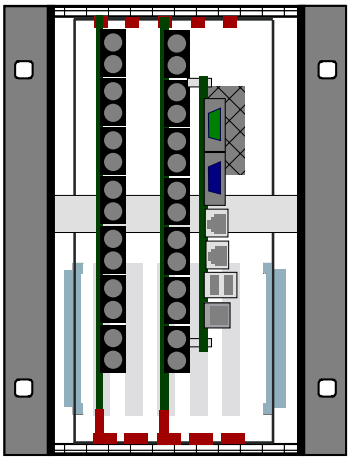
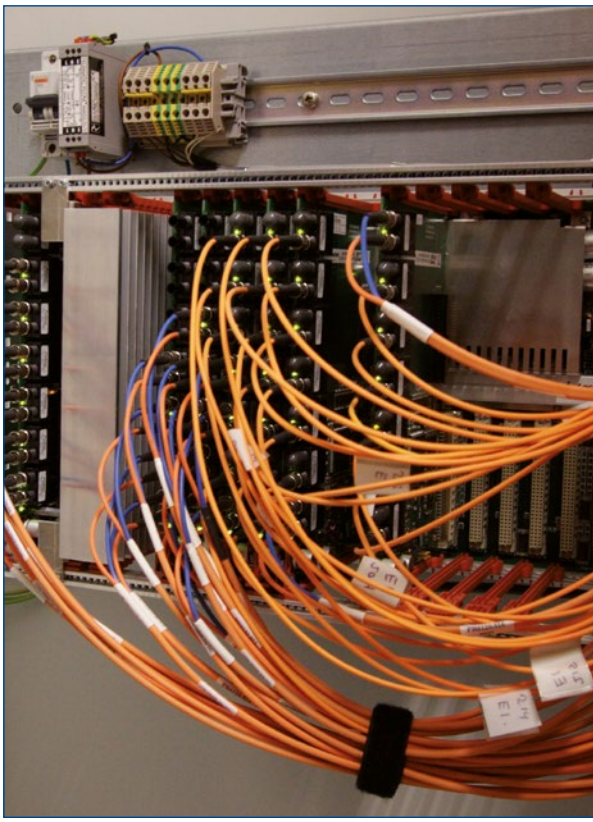
Central Control Unit (CCU 600 series)
Easy upgrading, scalability and redundancy

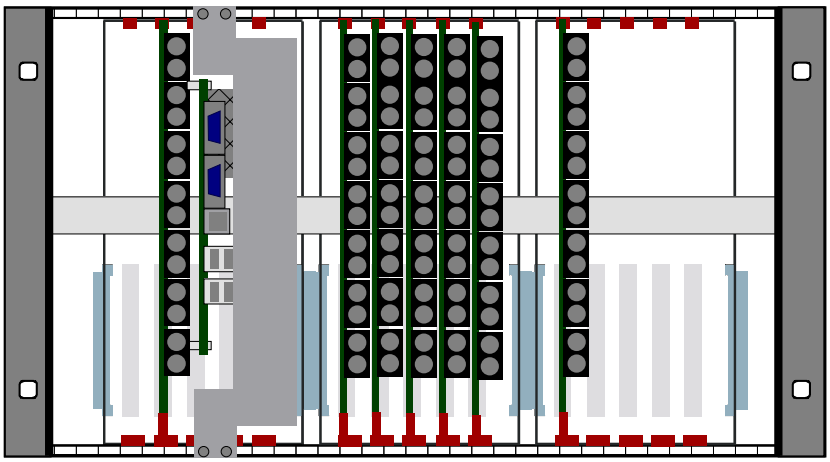


The CCU601 can have a maximum of three MP601 cards with a maximum of 21 optic fiber ports. The maximum of power consumption is 71 W.

The CCU600 series consists of two types. The CCU 601 and CCU 603.

- Each MP601 contains seven optic fiber ports.
- The SBC is physically mounted to one of MP601 boards.
  Currently two SBC versions are supplied: Celeron-Mobile and Pentium-Mobile. The latter is extra cooled with a heat sink. Both include a 1 Gb FlashDisk.





The CCU603 can have a maximum of 12 MP601 cards with a maximum of 84 optic fiber ports. The maximum of power consumption is 215 W.

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SA*Sensor* -Central Control Unit (CCU 600 series)

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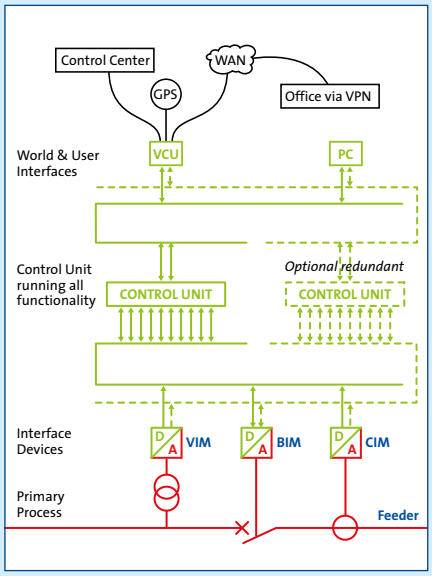

In a redundant system one CCU can be turned off for repair or replacement without any degradation of functionality or shutdown of the substation.

Cabinet	
Type floor cabinet	RITTAL TS8 805.500
Dimensions floor cabinet (H x W x D)	2000 x 800 x 600 mm
Protection	IP55

Power supply	
DC input range	38 V ... 138 V
Tripping value MCB	6 A @ 110 Vdc
Max. power consumption	215 W
Hold-up time	> 50 ms

DC input protection	Reverse input polarity
Max. surge current	6.5 kA (8/20 µs)

Fiber ports	
Communication ports	100Base-FX Ethernet
Connection	ST fiber optic ports
Light source	1300 nm
Fiber optic cables	62.5/125 or 50/125 optical multi mode
Speed	100 Mb/s
Max. number of optic ports (CCU603/CCU601)	84/21

CCU versions			
Type	*Max. optic fiber ports*	*Backplanes*	*Max. power consumption*
CCU601	21	1	71 W
CCU603	84	3	215 W

Electromagnetic compatibility			
Test	*Standard*	*Enclosure*	*PSU*
Electrostatic discharge	IEC 61000-4-2	6 kV contact 8 kV air	
RF immunity radiated	IEC 61000-4-3	10 V/m, 80 ... 3000 MHz	
Fast transient	IEC 61000-4-4		4 kV
Surge 1.2/50 µs	IEC 61000-4-5		2 kV LE, 1 kV LL
RF immunity conducted	IEC 61000-4-6		10 V, 10 V = 140 dB (µV) @ 0.15 ... 80 MHz
PF magnetic field	IEC 61000-4-9	400 A/m continuously, 1000 A/m for 3 seconds	
Voltage dips	IEC 61000-4-29		Un - 40 % : 200 ms Un - 70 % : 500 ms Un - 100% : 20 ms
Voltage interruptions	IEC 61000-4-29		Un - 100 % : 5000 ms
Voltage variations	IEC 61000-4-29		+35 % of Un continuously -20 % of Un continuously
Damped oscillatory wave	IEC 61000-4-12		2.5 kV CM, 1.0 kv DM, both @ 100 kHz and 1 MHz
Ripple	IEC 61000-4-17		15% Un

Electromagnetic emission			
Test	*Standard*	*Enclosure*	*PSU*
Radiated	IEC 61000-6-4	CISPR22, Class A @ 30 ... 1000 MHz	
Conducted	IEC 61000-6-4		CISPR22, Class A @ 0.15 ... 30 MHz

Climatic conditions			
Test	*Standard*	*Enclosure*	*PSU*
Operating temperature	IEC 60068-2-1 IEC 60068-2-2	-10 ... +55 °C, 72 hours	
Storage temperature	IEC 60068-2-1 IEC 60068-2-2	-25 ... +70 °C, 72 hours	
Damp heat static	IEC 60068-2-78	+40 °C max, 93% humidity	

Mechanical conditions			
Test	*Standard*	*Enclosure*	*PSU*
Vibration	IEC 60255-21-1	Class 1	
Shock withstand	IEC 60255-21-2	Class 1	

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