

# Communication unit 520CMD01

## Data sheet



## Application

The 520CMD01 communication unit is the CMU module of the RTU520 product line.

The essential tasks are:

- Managing and controlling of the I/O modules via the interface to the serial I/O bus.
- Reading Process events from the input modules.
- Send commands to the output modules.
- Communicating with control systems and local HMI systems via the serial interfaces (RS232) and the Ethernet 10/100BaseT interface.
- Communication with Sub-RTU's, IED's or multimeter devices via the interfaces (RS485) and the Ethernet interface.
- Managing the time base for the RTU560 station and synchronizing the I/O modules.
- Handling the dialog between RTU560 and Web-Browser via the LAN and USB interfaces.

The communication unit will be mounted on a DIN-rail, together with the power supply module and the I/O modules. The communication unit is able to handle Ethernet- and UART character based communication protocols.

The unit is available in 2 versions:

- R0001: without battery buffered real time clock (RTC)
- R0002: with battery buffered real time clock (RTC)

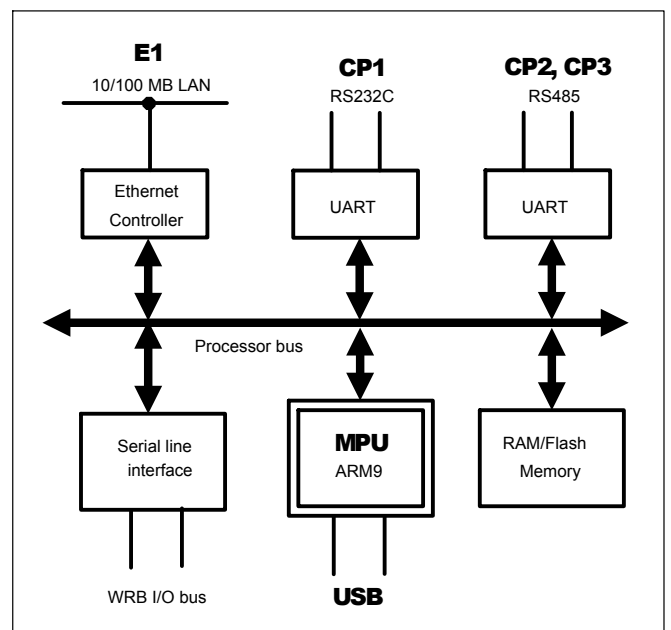


Figure 1: Block diagram 520CMD01

## Characteristics

On the applied ARM9-controller AT91SAM9260 a real-time operating system is implemented. The 520CMD01 is responsible for the interface management, the event handling, the time base and the internal data base. The ARM9 controller acts as master for the WRB I/O bus (Wired OR bus).

System relevant configuration files are stored in the non-volatile flash memory card in order to guarantee a valid system configuration after Power on Reset (PoR).

An optional battery buffered RTC is used to keep an exact time during power of state.

The communication unit provides the following interfaces:

- Communication Port 1 (CP1): a serial interface according RS232C with RJ45 connector.
- Communication Port 2 and 3 (CP2 & CP3): serial interfaces according RS485 with RJ45 connector.
- Ethernet Interface (E1) Ethernet interface 10/100BaseT with RJ45 connector.
- Interface X1 for power supply to the power supply unit 520PSD01.
- Interface X2 for communication unit with the RTU520 I/O modules.
- USB 2.0 interface for diagnosis and maintenance purposes.
- WRB I/O bus interface for local communication with the I/O-modules

## Technical data

In addition to the RTU500 series general technical data, the following applies:

Main Processing Unit MPU		
CPU	ARM9, AT91SAM9260 @ 200 MHz	
RAM	64 MByte	
NAND Flash	4 GByte	
SD card		
Connector	SD card slot (push push)	
Type	SD 2.0, class 2	
Capacity	1 GByte	
Real time clock RTC (R0002 only)		
Battery	Lithium 3 V DC, CR2032	
Time resolution	1 sec	
Battery live time	> 10 years	
Serial interface CP1		
Connector	RJ45	
Type	RS232C	
Bit rate	100 bit/s - 38.4 kbit/s	
Signal lines	<div><div>GND</div><div>E2/102</div><div>TxD</div><div>D1/103</div><div>RxD</div><div>D2/104</div><div>RTS</div><div>S2/105</div><div>CTS</div><div>M2/106</div><div>DTR</div><div>S1.2/108</div><div>DCD</div><div>M5/109</div></div>	
Level	typical: ± 6V	
Serial interfaces CP2 and CP3		
Connector	RJ45	
Type	RS485	
Bit rate	300 bit/s - 38.4 kbit/s	
Level	Δ = 3V (typical)	
Ethernet interface E1		
Connector	RJ45	
Type	IEEE 802.3, 10/100BaseT	
USB interface		
Connector	USB Type B	
Type	USB 2.0 device, low and high speed (max. 12 MBit/s)	

### Current consumption for power supplied via WRB bus

5 V DC	max. 300 mA
15 V DC	--
18 V DC	--
24 V DC	--

### Signaling by LEDs

ERR (red)	ON: RTU in error state Flashing: RTU in warning state For more details see RTU500 series Function Description
RUN (green)	Communication module in operation
WRB (green)	Transmission on to the I/O bus
Tx (green)	Transmit data on serial communication ports CP
Rx (green)	Receive data on serial communication ports CP
SP (green)	Ethernet communication speed: ON: 100 Mbit/s OFF: 10 Mbit/s
L/A (green)	Link up (ON) / Activity (Flashing) on Ethernet interface E

### Mechanical layout

Dimensions	35 mm x 98 mm x 117 mm (Width x Height x Depth)
Housing type	Plastic housing (V-0), IP20, RAL 7035 light gray
Mounting	DIN rail mounting EN 50022 TS35: 35 mm x 15 mm or 35 mm x 7.5 mm
Weight	

### Immunity test

Electrostatic discharge IEC 61000-4-2	8 kV air (level 3) / 4 kV contact (level 2) Performance criteria A
Radiated Radio-Frequency Electromagnetic Field IEC 61000-4-3	10 V/m (level 3) Performance criteria A
Electrical Fast Transient / Burst IEC 61000-4-4	4 kV (level X) Performance criteria A
Surge IEC 61000-4-5	2 kV (level 3) Performance criteria A
Conducted Disturbances, induced by Radio-Frequency Fields IEC 61000-4-6	10 V (level 3) Performance criteria A
Damped oscillatory wave IEC 61000-4-18	2.5 / 1 kV (level 3) Performance criteria A

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**Environmental conditions**

Nominal operating temperature range:	-25°C... 70°C
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Start up:	-40 °C
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Max. operating temperature, max.	+85 °C
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96h:	
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EN 60068-2-1, -2-2, -2-14	
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Relative humidity	5 ... 95 %
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EN 60068-2-30	(non condensing)
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**Ordering information**

520CMD01 R0001	1KGT031900R0001
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without battery buffered RTC	
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520CMD01 R0002	1KGT031900R0002
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with battery buffered RTC	
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