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Remote Terminal Units - Data sheet

Communication unit 520CMD01
RTU520 product line

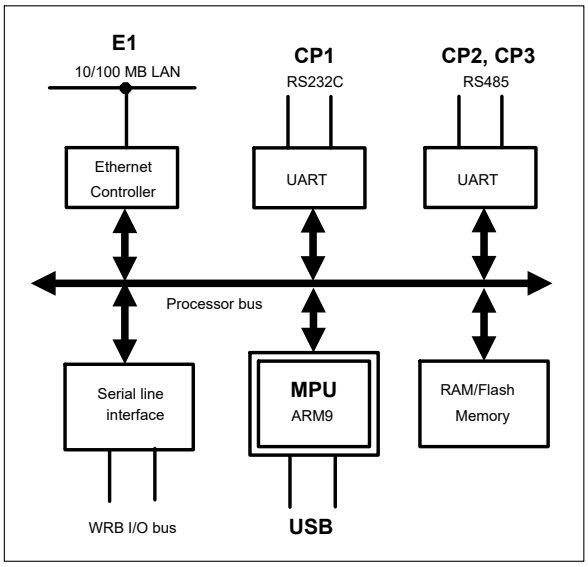

Figure 1: Block diagram 520CMD01

Application

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

The essential tasks are:
- Managing and controlling of the RTU520 I/O modules via 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 RTU520 product line station and synchronizing the I/O modules.
- Handling the dialog between RTU520 product line and Web-Browser via the LAN 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)

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 controller acts as master for the serial I/O bus (WRB).

System relevant configuration files are stored in the non-volatile flash memory card (removable SD-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 off 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): 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 device interface for diagnosis and maintenance purposes.
- WRB I/O bus interface for local communication with the I/O-modules

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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	4 GByte

Real time clock RTC (Backup)	
Battery	Lithium 3 V DC, CR2032
Time resolution	1 sec, 1ms with timesync
Battery lifetime	> 10 years
Free running	± 50 ppm

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	GND	E2/102
	TxD	D1/103
	RxD	D2/104
	RTS	S2/105
	CTS	M2/106
	DTR	S1.2/108
	DCD	M5/109
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 (configuration interface)

USB interface	
Type	USB 2.0 device, low and full speed (max. 12 MBit/s)

Current consumption for power supplied via WRB bus	
5 V DC	max. 300 mA
±15 V DC	--
18/ 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	Transmit data on serial communication ports CP
Rx	Receive data on serial communication ports CP
SP	Ethernet communication speed: ON: 100 Mbit/s OFF: 10 Mbit/s
L/A	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	0.17 kg

Immunity test	
Electrostatic discharge IEC 61000-4-2	8 kV air / 6 kV contact (level 3) 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

Immunity test	
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

Environmental conditions - climatic	
Operating temperature EN 60068-2-14	-25 °C ... 70 °C
Start up EN 60068-2-1	-40 °C
Max. operating temperature, max. 96h EN 60068-2-2	+85 °C
Relative humidity EN 60068-2-30	5 ... 95 % (non condensing)

Ordering information	
520CMD01 R0001 without battery buffered real time clock (RTC)	1KGT031900R0001
520CMD01 R0002 with battery buffered real time clock (RTC)	1KGT031900R0002

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