

Signaling by LEDs

ERR (red)	ON: RTU in error state Flashing: RTU in warning state
RUN (green)	Communication module in operation
T	Transmit data on serial communication ports CP
R	Receive data on serial communication ports CP
S	Ethernet communication speed: ON: 100 Mbit/s OFF: 10 Mbit/s
L	Link up (ON) / Activity (Flashing) on Ethernet interface E

Mechanical layout

Dimensions	160 mm × 100 mm, 3HE euro card format 4R (20 mm) front panel
Housing type	Printed circuit board
Mounting	for mounting in RTU560 racks
Weight	0.14 kg

Connection type

RTU560 backplane	48 pole type F DIN Connector 41612
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Immunity test

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

Immunity test

Damped oscillatory wave IEC 61000-4-18	2.5 / 1 kV (level 3)
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Environmental conditions

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

Ordering information

560CMR01 R0001



Khorasan Science Technology Park



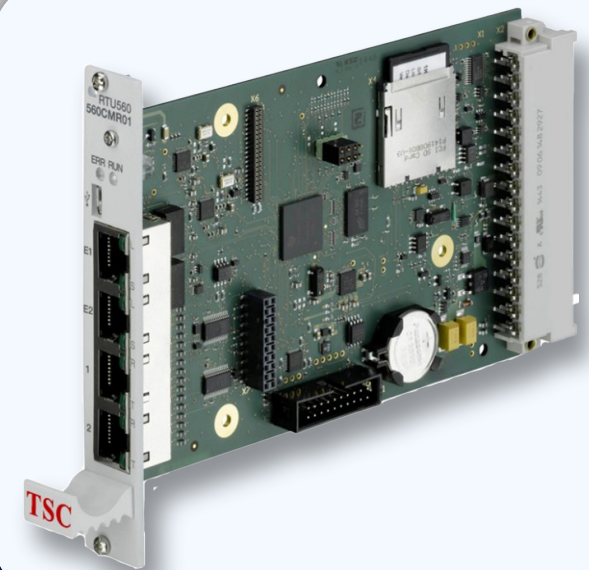
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051-37677068-9



CPU CMR01

Catalog RTU560

Application

The 560CMR01 communication unit is a key CMU module within the RTU560 product line. Its primary functions include:

- Supervising and controlling I/O modules through the serial I/O bus interface.
- Monitoring process events from input modules.
- Issuing commands to output modules.
- Facilitating communication with control systems and local HMI systems via serial (RS232) and Ethernet 10/100BaseT interfaces.
- Enabling communication with Sub-RTUs, IEDs, and multimeter devices through RS485 and Ethernet interfaces.
- Managing the time base of the RTU560 station and synchronizing connected I/O modules.
- Supporting interaction between the RTU560 system and web browsers through LAN interfaces.

Within the RTU560 racks, the 560CMR01 occupies a designated slot and supports both Ethernet- and UART-based communication protocols.

The unit is equipped with a battery-backed real-time clock (RTC) to maintain accurate timekeeping even during power interruptions.

Characteristics

The 560CMR01 utilizes an ARM Cortex-A8 AM3352 controller running a real-time operating system (RTOS). It is responsible for managing interfaces, handling events, maintaining the system time base, and operating the internal database.

The controller functions as the master of the SPB I/O bus (Serial Peripheral Bus). The RTU560 synchronizes its operation with the time references provided by the 560RTC0x module. This time information is transferred to the 560CMR01 via the sub-rack backplane.

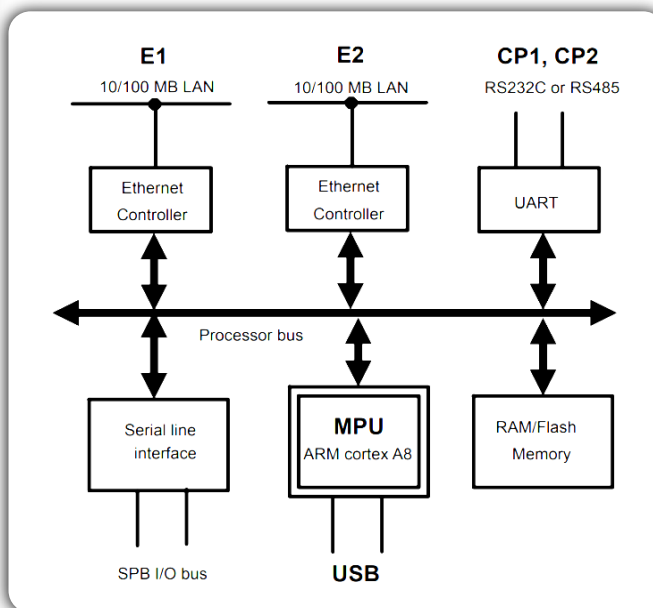


Figure 1: Block diagram 560CMR01

System-relevant configuration files are stored on a non-volatile flash memory card (removable SD™ card) to ensure a valid system configuration following a Power-on Reset (PoR). A battery-backed real-time clock (RTC) is employed to maintain precise timekeeping during power-off conditions.

The communication unit provides the following interfaces:

- **Communication Ports 1 and 2 (CP1 & CP2):** Serial interfaces supporting RS232C or RS485 with RJ45 connectors. Each port can be independently configured as an SPB I/O bus interface accessible from the front panel.
- **Ethernet Interfaces 1 and 2 (E1 & E2):** 10/100BaseT connections with RJ45 connectors.
- **USB 2.0 Device Interface:** Dedicated for diagnostic and maintenance purposes.
- **SPB I/O Bus:** Directly connected to the sub-rack backplane connector.

Technical data

In addition to the general technical specifications of the RTU500 series, the following parameters are applicable:

Main Processing Unit MPU

CPU	ARM cortex A8, AM3352 @ 800 MHz
RAM	128 MByte
Boot Flash	8 MByte

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 VDC, CR2032
Time resolution	1 sec, 1ms with timesync
Battery lifetime	> 10 years
Free running	±50 ppm

Serial interfaces CP1 and CP2

Connector	RJ45
Type	RS232C or RS485
RS232C:	
Bit rate	200 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
RS485:	
Bit rate	200 bit/s - 38.4 kbit/s
Level	typical: ±6V

Ethernet interface E1 and E2

Connector	RJ45
Type	IEEE 802.3, 10/100BaseT

USB interface

Connector	micro USB Type AB (female)
Type	USB 2.0 device, low, full and high speed (max. 480 Mbit/s)
Cable type to PC	USB Type A <->micro USB Type B

Current consumption for power supplied via RTU560 backplane

5 VDC	500 mA
24 VDC	3 mA