

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 Connector	48 pole type F DIN 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 EN 60068-2-30	5 - 95 % (non condensing)

Ordering information

560CMR02 R0002



Khorasan Science Technology Park



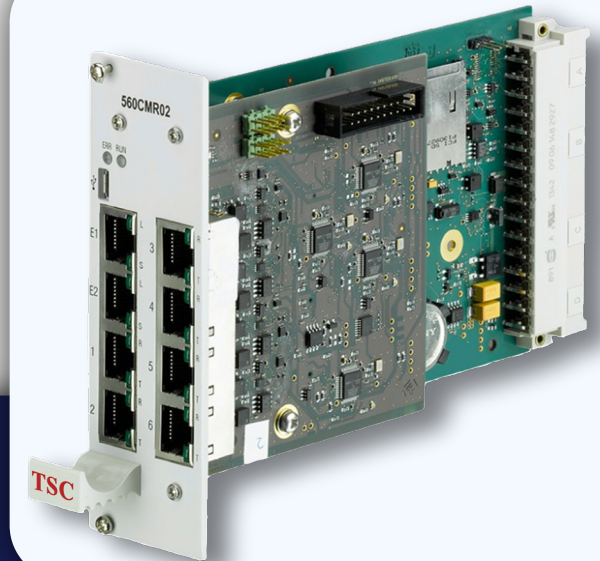
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051-37677068-9



CPU CMR02

Catalog RTU560

Application

The 560CMR02 communication unit is a core CMU module within the RTU560 product line.

Its primary functions include:

- Supervising and controlling I/O modules through the serial I/O bus interface.
- Acquiring process events from input modules.
- Issuing control commands to output modules.
- Establishing communication with control systems and local HMI platforms via serial (RS232) and Ethernet 10/100BaseT interfaces.
- Enabling data exchange with Sub-RTUs, IEDs, and multimeter devices through RS485 and Ethernet interfaces.
- Managing the system time base for the RTU560 station and ensuring synchronization across I/O modules.
- Supporting communication between the RTU560 system and web browsers via LAN interfaces.

Within the RTU560 rack system, the board requires two slots. The communication unit supports both Ethernet-based protocols and UART character-oriented communication protocols.

The unit is equipped with a battery-backed Real-Time Clock (RTC).

Characteristics

The 560CMR02 communication unit is built on an ARM Cortex-A8 AM3352 controller, which operates under a real-time operating system (RTOS). The unit is responsible for interface management, event processing, time base control, and internal database handling.

The controller functions as the master of the Serial Peripheral Bus (SPB I/O bus). Time synchronization of the RTU560 is achieved through reference signals provided by the 560RTC0x module, with time data transferred to the 560CMR02 via the sub-rack backplane.

System-critical configuration files are stored on a non-volatile flash memory card (removable SD card™), ensuring system integrity and availability after a Power-on Reset (PoR). To maintain accurate timekeeping during power-off conditions, a battery-backed Real-Time Clock (RTC) is integrated.

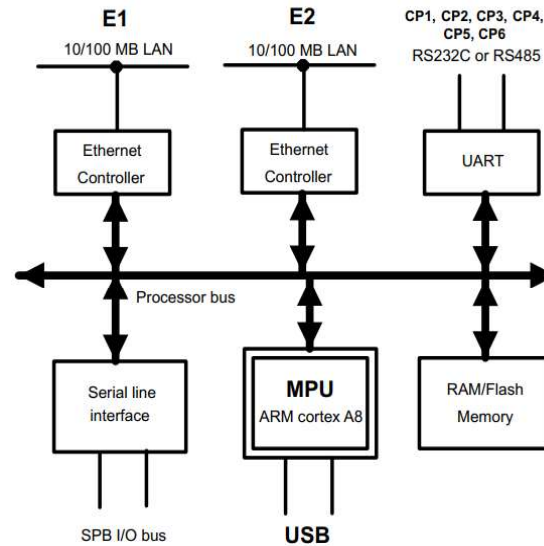


Figure 1: Block diagram 560CMR02

The communication unit is equipped with the following interfaces:

- **Communication Ports 1 and 2 (CP1 & CP2):** Serial interfaces compliant with RS232C or RS485 standards, using RJ45 connectors. Each port can be configured independently as an SPB I/O bus interface accessible from the front panel.
- **Ethernet Interfaces 1 and 2 (E1 & E2):** 10/100BaseT connections via RJ45 connectors.
- **USB 2.0 Device Interface:** Dedicated to diagnostic and maintenance operations.
- **SPB I/O Bus:** Directly linked to the 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	600 mA
24 VDC	4 mA