AMK AMKASYN

VARIABLE SPEED DRIVES

AMKASYN

Digital inverters in modular construction

Additional card for central module AZ
AZ-RC1 RISC Controller

Important advice:

Touching of the electrical connections on the plug-in card must be avoided, otherwise electronic components could be destroyed through static discharge.

Take plug-in card directly out of packing and insert into option slot 4 in the AZ module without using force. Then secure with screws below the card grip.

0700.1E Part No.: 26578

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AZ-RC1 RISC Controller

The option card AZ-RC1 normally is plugged into slot 4 of central module AZ. It is secured in the front panel by a captive screw below the card grip against inadverted loosening.

The option card AZ-RC1 must be assigned to slot 4 in ID 32882 „Slot assignment“ in the basic system:

ID 32882: xx xx xx 81 hex.
00 instead of xx if slot 1, 2 and 3 are free.
If additional option cards are used in slot 1/2/3 the corresponding card codes must be entered instead of xx.

The AZ-RC1 card is used as a drive interface to solve tasks closely related to the drive.The program is developed by the customer in programmming language and assembler using the available development tools.
AMK can make available driver and initialization routines and different service programs.

- **32Bit RISC microprocessor**
  - Optimized operations set
  - Integrated 80 bit hardware, floating point arithmetic with sine, cosine and root functions
  - Program cache
  - 8 bit, 16 bit, 32 bit memory access

- **0,5 MB (2 MB as an option) RAM, battery-backed**
  - 10 years battery lifetime with 50% ON-time
  - Battery monitor. A register bit is set and indicates, that the battery has to be replaced. The customer program has to evaluate this bit and then displaying a warning.

- **1 MB program memory (EPROM)**

- **1 kB dual port RAM interface to the AMKASYN drive system**
  - Direct access to all cyclic drive variables like torque, speed and position setpoint values and actual position values.
  - Access to parameters, status and diagnosis information.

- **AMKASYN drive system synchronized time-interrupt**
  - Completely synchronized cyclic data transfer: isochronous sampling of setpoint and actual values (40ns jitter).
  - Sampling interval can be set in steps of 0,5 ms.

- **Serial interface RS 422**
  - Asynchronous transmission
  - 1 or 2 stop bits
  - 7 or 8 data bits
  - Even parity or no parity bit
  - Standard Baud rates: 9.600, 19.200, 38.400, 57.600, 76.800, 115.200 Bd
  - 15-pole female D-SUB front connector

- **Second serial interface for DEBUGGING**
  - TTL level available via 5 pole plug connector
  - Baud rate 38.400

- **Serial EEPROM (93C46)**

- **Watchdog**

- **Timer**
  - 2 Modi: free running, software triggered
  - Adjustable between 275ns and 1,1ms

- **Second processor bus socket connector for plug-on cards:**
  - ARCNET Interface
  - PROFIBUS-DP
  - INTERBUS-S
  - SERCOS interface

- **Customized C programs**
  - Customer programmed
  - Programming tools for PC
  - Library program with initialization and driver routines
  - AMK service support
  - AMK training

Option card AZ-RC1 RISC Controller

A battery-backed memory is installed on the AZ-RC1 card. The capacity of the Lithium battery is able to maintain the data for maximum 5 years.

The storage life of a AZ-RC1 card with battery inserted is thus limited to a maximum of 5 years!
If the battery is removed, all stored data are lost!

Description of the display and operator elements at the AZ-RC1 front panel:

LEDs:

ER:
SP:
RN:
LO:
L1, L2

Assignment and function depending on the customer program.

Switch positions:

SP: (notched position)
RN: (notched position)
RS: (momentary contact)

Assignment and function depending on the customer program.

Backup battery

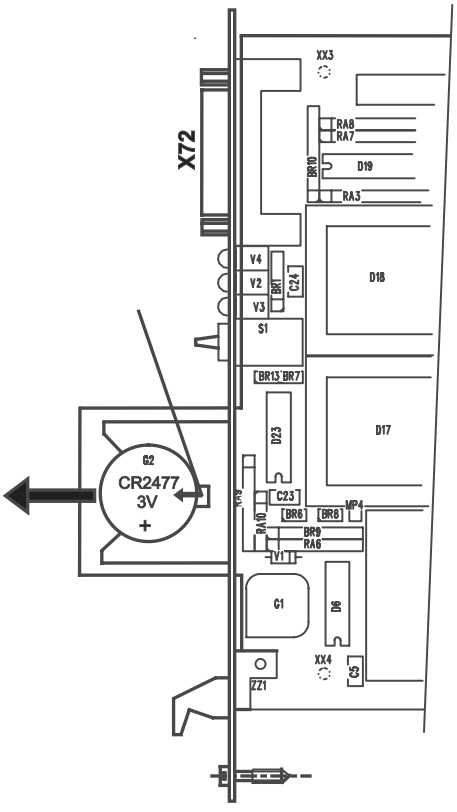
The AZ-RC1 memory is battery-backed by a 3V Lithium battery type CR2477 (RENATA). With power on the battery voltage is monitored. If the battery voltage is too low a register bit is set and indicates that the battery has to be replaced. This bit has to be evaluated by the customer program and then a warning message must be displayed. From this time the battery capacity is still sufficient to maintain the memory for one week. To avoid data loss the battery must be replaced immediately!

Battery change

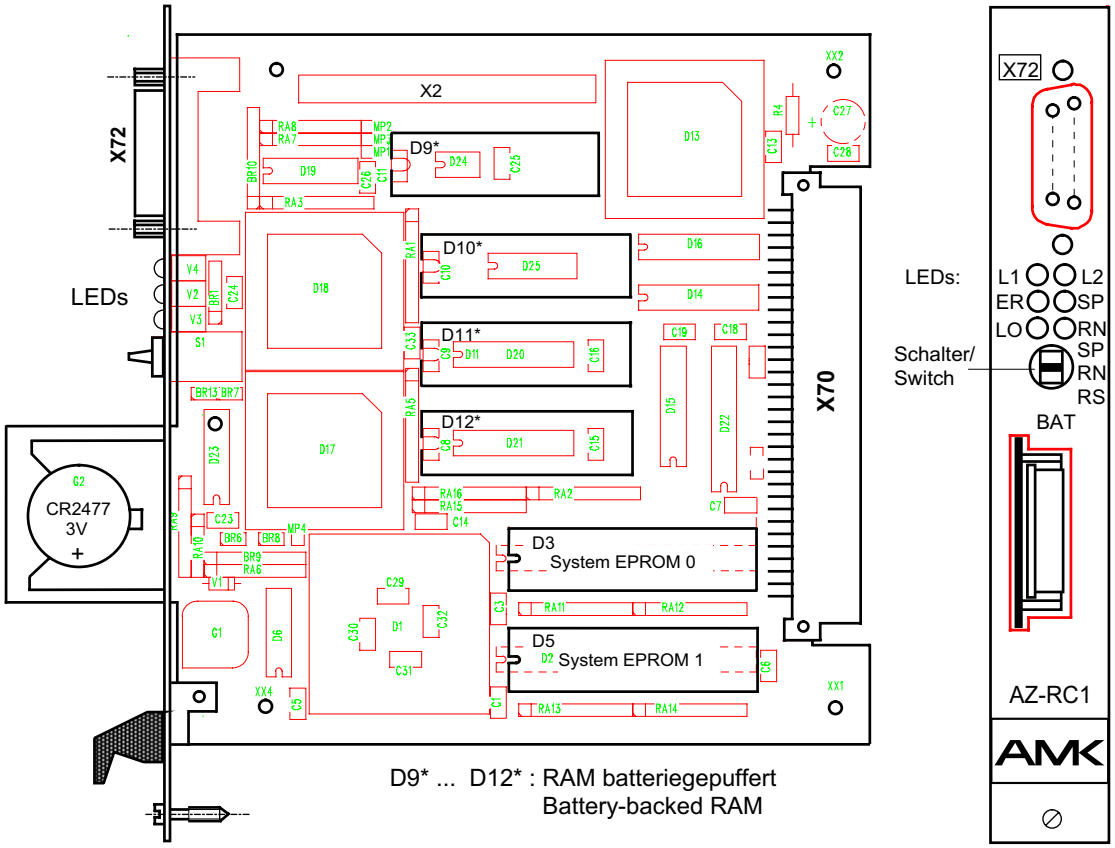
Battery change is only permissible with system POWER ON!

Battery Type:
3V Lithium CR2477 RENATA

1. During battery change the power supply must be ON!
2. Carefully press out the old battery towards you by applying a suitable screw driver at the notch. Carefully insert the new battery into the holder. Pay attention to battery polarity: The side with the battery designation (CR2477 +) must be visible. Keep the battery circumference absolutely clean, don't touch it!
3. Now Power OFF and ON again.



AZ-RC1 component mounting diagram and front panel



Connector pin assignment X72:

Serial interface RS422

Pin	Signal
1	PE
2	TXD-
3	RXD-
4	RTS
5	CTS
6	TXD-
7	GND
8	TXD
9	GND
10	+5V
11	+5V
12	TXD
13	RXD
14	RTS-
15	CTS-

AZ-RC1 ESD-PROTECTION / INSTALLATION:

Please do not touch the electrical connections or the exposed contacts on the front or backside of the plug-in circuit boards. Static-electricity due to handling of the boards can destroy the boardlevel components. Please make sure the person handling the boards has proper PE-ground connection to reduce static-electricity.

Please insert the plug-in board directly from the packaging into the appropriate slot in the AZ module without using force and secure the board with the captive screws underneath the card-holder.

Inappropriate handling of the board can lead to a short-circuit in the battery power supply, which could cause a loss of stored data in the user program.

- Never lay the board on a conductive surface (metal table top).
- Avoid touching the front or back side of the board.
- During the insertion of the plug-in board into the slot of the AZ-module it is imperative that the solder side of the board does not make contact with the frontcover of already inserted boards. If necessary remove the other board first before installing the AZ-RC1 card.

Sequence for exchange procedure of the AZ-RC1 card:

1. Make sure the AMKASYN system is without power.
2. Remove front cover on AZ module.
3. If existing: disconnect external cable to the option card lefthand beside the AZ-RC1 card.
4. Unscrew the captive screws of the to be exchanged AZ-RC1 card (and of the card lefthand beside if existing).
5. If existing: Remove lefthand plug-in card by the card grip and lay it on a nonconductive surface (bubble wrap etc.).
6. Remove the AZ-RC1 card by the card grip and lay it on a nonconductive surface (bubble wrap etc.).
7. Take the new AZ-RC1 card out of the packaging. Only handle it by the front card grip or by the front panel.
8. Insert this new AZ-RC1 card into the appropriate option slot and secure it with the captive screw.
9. If existing: plug-in and secure again before removed lefthand option card.
10. Reconnect and secure all external cables.
11. Download user program to AZ-RC1 (only if the new card was inserted without user program).