

# CR-220 N

Unit Revision 1.0

## Hardware Manual



# CONTENT

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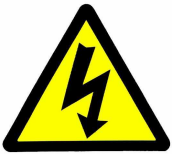
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# 1 INTRODUCTION

This document describes the hardware components of the CR-220 N. For further information about the individual components of this product you may follow the links from our website at <http://www.isk-automation.de>. Our website contains a lot of technical information, which will be updated in regular periods.

## 1.1 Safety Guidelines

Please read the following safety guidelines carefully! In case of property or personal damage by not paying attention to this document and/or by incorrect handling, we do not assume liability. In such cases any warranty claim expires.



**ATTENTION:** Observe precautions for handling – electrostatic sensitive device!

- Discharge yourself before you work with the device, e.g. by touching a heater of metal, to avoid damages.
- Stay grounded while working with the device to avoid damage through electrostatic discharge.

## 1.2 Conventions

Convention	Usage
<b>bold</b>	Important terms
<i>italic</i>	Filenames, user inputs and command lines
monospace	Pathnames, internet addresses and program code

**Table 1: Conventions used in this document**

### 1.3 Block Diagram

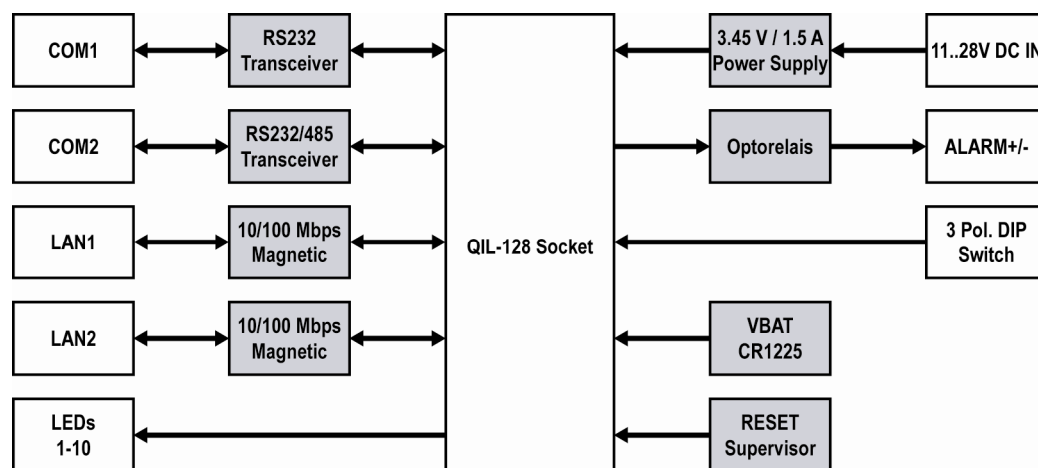


Figure 1: Block diagram of CR-220 N

## 1.4 Features and Technical Data

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- 32-Bit CPU Atmel AT91RM9200
- ARM9 MCU with 180 MHz
- LINUX Kernel 2.6
- 64 MB RAM and 32 MB Flash
- Full watchdog control integrated
- 2x 10/100 Mbps LAN interface
- 2x UART interface (1xRS232, 1x RS232/485)
- 1x RTC with battery backup
- 1x Reset switch
- 1x 3 Pol. DIP switch
- 10x Status LED
- Supply voltage 11..28 VDC ( $\pm 5\%$ )
- -20 – 70 °C operating temperature
- Size 35 mm x 100 x 122 mm
- RoHS compliant

## 2 CONNECTOR LAYOUT

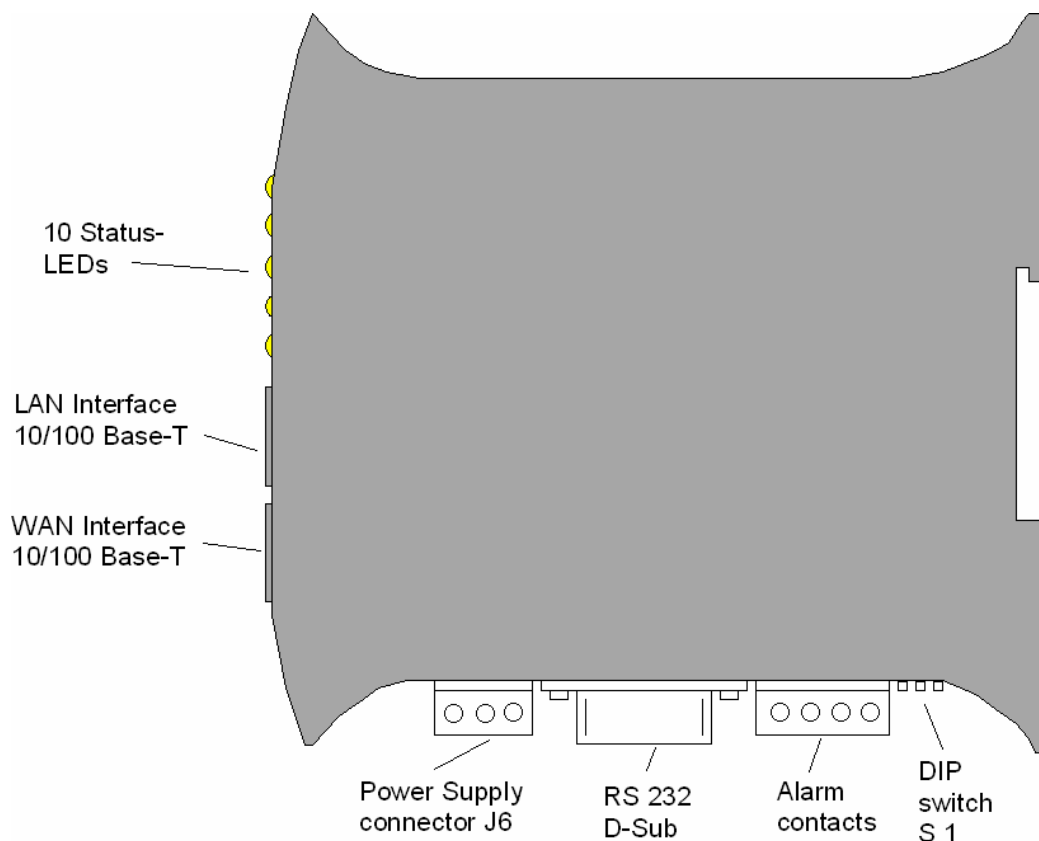


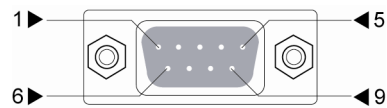
Figure 2: Connector layout of CR-220 N

## 3 PINOUTS

### 3.1 COM1 Connector – RS 232

Pin	Name	Function
1	DCD1	COM1 Serial Port, DCD Pin
2	RXD1	COM1 Serial Port, RXD Pin
3	TXD1	COM1 Serial Port, TXD Pin
4	DTR1	COM1 Serial Port, DTR Pin
5	GND	Ground
6	DSR1	COM1 Serial Port, DSR Pin
7	RTS1	COM1 Serial Port, RTS Pin
8	CTS1	COM1 Serial Port, CTS Pin
9	RI1	COM1 Serial Port, RI Pin

Table 2: Pinout COM1 connector



### 3.2 RS 485 Connector and Alarm Output

The RS mode of serial port COM2 is controlled by pin 1 of the QIL-128 socket (0 = RS232, 1 = RS485).

The RTS function in RS485 mode is controlled by pin 2 of the QIL-128 socket (0 = Receiver active, 1 = Transmitter active).

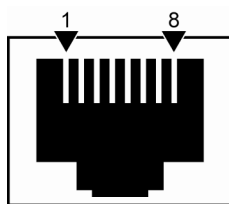
Pin	Name	Function
1	RXD2	COM2 Serial Port, RXD Pin
2	TXD2	COM2 Serial Port, TXD Pin
3	ALARM+	Alarm +
4	ALARM-	Alarm -

Table 3: Pinout COM2 connector

### 3.3 10/100 Mbps Ethernet LAN – J4

Pin	Name	Function
1	LAN1TX+	10/100 Mbps LAN1, TX+ Pin
2	LAN1TX-	10/100 Mbps LAN1, TX- Pin
3	LAN1RX+	10/100 Mbps LAN1, RX+ Pin
4	GND	Ground
5	GND	Ground
6	LAN1RX-	10/100 Mbps LAN1, RX- Pin
7	---	---
8	GND	Ground

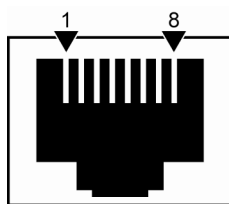
Table 4: Pinout Ethernet connector LAN1



### 3.4 10/100 Mbps Ethernet WAN – J5

Pin	Name	Function
1	LAN2TX+	10/100 Mbps LAN2, TX+ Pin
2	LAN2TX-	10/100 Mbps LAN2, TX- Pin
3	LAN2RX+	10/100 Mbps LAN2, RX+ Pin
4	GND	Ground
5	GND	Ground
6	LAN2RX-	10/100 Mbps LAN2, RX- Pin
7	---	---
8	GND	Ground

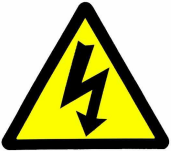
Table 5: Pinout Ethernet connector LAN2



### 3.5 Power Connector – J6

Pin	Name	Function
1	PE	Protective Earth
2	GND	Ground
3	VCC	11..28 VDC Power Input

Table 6: Pinout power connector



**CAUTION:** Providing the CR-220 with a voltage higher than the regular 11..28 VDC  $\pm 5\%$  could resolve in damaged board components!

### 3.6 RCM Jumper – JP1

The **Remote Console Mode (RCM)** realizes some basic operating modes such as a boot loader or a ROM-monitor program. This function is only used by ISK support specialists and may not be used by customers, because this jumper is only accessible after opening the housing, which will cause the loss of warranty.

COM3 Jumper	Function
	RCM disabled (default)
	RCM enabled
	RCM enabled/disabled via COM1 DSR Signal

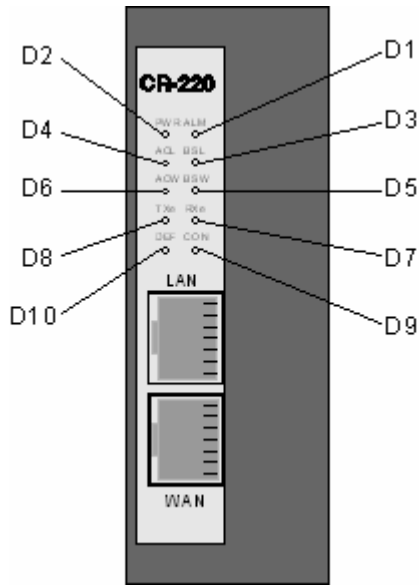
Table 7: RCM jumper settings

### 3.7 DIP Switch – S1

The DIP-Switch offers three special modes for service and maintenance. For normal operation all three switches are set to 0.

Pin	Name	Function
1	DIP1	Start download function for FW updates
2	DIP2	Start with fixed default IP-adress 192.168.1.1
3	DIP3	Special function mode, reserved for trained Personal

Table 8: DIP switch



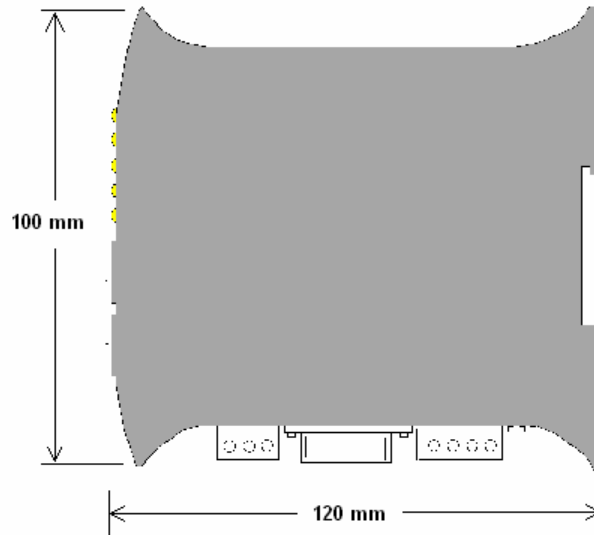
### 3.8 Status LEDs – D1 – D5

LED	Name	Function
D1 yellow	ALARM	Alarm status
D2 green	PWR	Power o.k. status
D3 yellow	BSL	LAN busy
D4 green	ACL	LAN activity
D5 yellow	BSW	WAN busy
D6 green	ACW	WAN activity
D7 yellow	RXe	Receive COM
D8 green	TXe	Transmit COM
D9 yellow	CON	Configuration mode active
D10 green	DEF	VPN tunnel is active

Table 9: Status LEDs

## 4 MECHANICAL DIMENSIONS

All length dimensions have a tolerance of 0.5 mm.



**Figure 3: Mechanical dimensions of CR-220 N**

## CONTACT

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## DOCUMENT HISTORY

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Revision	Date	Remarks	Name
1.0	2010-09-08	First version	WBU

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