Remote Access Gateway IGW/925-W

with DIL/NetPC ADNP/9200

Hardware Reference

SSV Embedded Systems
Dünenweg 5
D-30419 Hannover
Phone: +49 (0)511/40 000-0
Fax: +49 (0)511/40 000-40
E-mail: sales@ssv-embedded.de

Document Revision: 1.1
Date: 2015-08-26

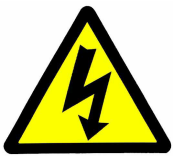
CONTENT

1 INTRODUCTION

This document describes the hardware components and the necessary cable connections of the Remote Access Gateway IGW/925-W.

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
bold	Important terms
italic	Filenames, user inputs and command lines
`monospace`	Pathnames, internet addresses and program code

Table 1: Conventions used in this document

1.3 Features and Technical Data

Processor	
Manufacturer / Type	Atmel AT91RM9200 32-bit ARM9-MCU (DIL/NetPC ADNP/9200 on QIL-128 socket)
Clock speed	180 MHz
Memory	
RAM	64 MB SDRAM
Flash	32 MB NOR memory
Storage media	1x internal microSD card holder with 4 GB card (preconfigured with SQLite database)
Interfaces	
Ethernet	1x 10/100 Mbps (RJ45) 4x 10/100 Mbps (RJ-45) over integrated 4-port switch with Auto MDI-X support
Serial I/Os	1x RS232 serial port with handshake (Sub-D) 1x RS232/RS485 serial port with software-selectable mode switch (screw terminal)
Alarm output	1x Semiconductor relay output (max. 30 VDC, 500 mA)
Special Functions	
RTC	1x Real Time Clock with battery-backup (CR1225 Lithium 3 V)
Watchdog	1x Timer watchdog (hardware-based, software-configurable) 1x Power supervisor (hardware-based)
Wireless Module	
WiFi standards	IEEE 802.11 b/g/n (2.4 GHz)
Network protocols	TCP/IP, UDP/IP
Operating modes	Simultaneous Soft AP Client mode with DHCP server
Security	IEEE 802.11i support with WPA/WPA2 256-bit AES encryption
Management	Web server with landing page and WebUI
Displays / Control Elements	
LEDs	1x Power 1x IGW start-up + VPN status (programmable) 1x LAN LED for Ethernet interface LAN 1A - D 2x LAN LED for Ethernet interface LAN 2
Electrical Characteristics	
Power supply	12 .. 24 VDC (typ. 24 VDC) from external power supply
Power consumption	< 4 W
Mechanical Characteristics	
Protection class	IP20 industrial case for 35 mm DIN-rail mounting
Mass	< 270 g
Dimensions	112 mm x 100 mm x 45 mm
Operating temperature	0 .. 70 °C
Standards and Certifications	
EMC	CE
Environmental standards	RoHS, WEEE
Industrial standards	VHPready (Virtual Heat & Power Ready)

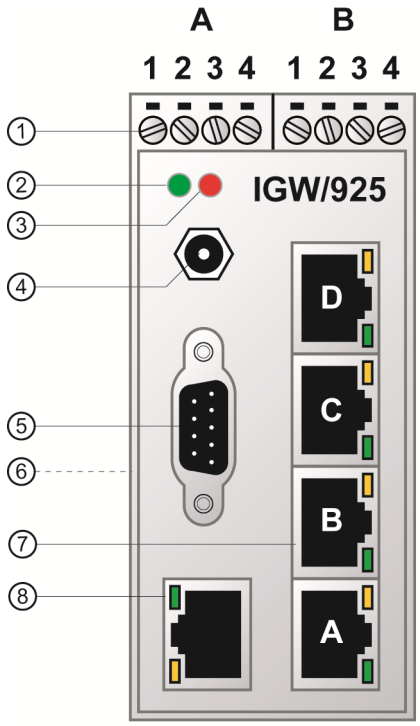
1.4 Main Applications

- Remote Access Security Gateway
- Industrial Firewall
- Application Gateway
- Proxy Server
- VPN Gateway / Router
- Linux Device Server

1.5 Demo Applications

- Smartphone App Backend
- Data logger with cloud connection

2 OVERVIEW



① Screw terminals A1- 4 and B1-4
② Power LED
③ User LED (programmable)
④ Antenna connector
⑤ Serial port COM1
⑥ DIN-rail mounting (backside)
⑦ Ethernet interface LAN 1A-D
⑧ Ethernet interfaces LAN 2

Figure 1: Overview Remote Access Gateway IGW/925-W

3 CONNECTIONS

3.1 Ethernet LAN 1A – D

The Ethernet interfaces LAN 1A – D offer each a green LED. It is on when there is a LAN link established and blinks when there is traffic. The yellow LED is not connected.

The Ethernet interfaces LAN 1A – D are equal. They are connected over an integrated 4-port switch.

The Ethernet interfaces LAN 1A – D support Auto MDI/MDIX.

Pin	Name	Function
1	TX+	10/100 Mbps LAN, TX+ Pin
2	TX-	10/100 Mbps LAN, TX- Pin
3	RX+	10/100 Mbps LAN, RX+ Pin
4	---	Not Connected
5	---	Not Connected
6	RX-	10/100 Mbps LAN, RX- Pin
7	---	Not Connected
8	---	Not Connected

Table 2: Pinout Ethernet interfaces LAN 1A – D

3.2 Ethernet LAN 2

The Ethernet LAN 2 interface offers a green LED. It is on when there is a LAN link established and blinks when there is traffic. The yellow LED is not connected.

The Ethernet interface LAN 2 does NOT support Auto MDI/MDIX.

Pin	Name	Function
1	TX+	10/100 Mbps LAN, TX+ Pin
2	TX-	10/100 Mbps LAN, TX- Pin
3	RX+	10/100 Mbps LAN, RX+ Pin
4	---	Not Connected
5	---	Not Connected
6	RX-	10/100 Mbps LAN, RX- Pin
7	---	Not Connected
8	---	Not Connected

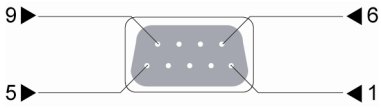
Table 3: Pinout Ethernet interface LAN 2

3.3 Serial Port COM1

The serial port COM1 is a standard Sub-D connector.

Pin	Name	Function
1	DCD	COM1 Serial Port, DCD pin (RS232)
2	RXD	COM1 Serial Port, RXD pin (RS232)
3	TXD	COM1 Serial Port, TXD pin (RS232)
4	DTR	COM1 Serial Port, DTR pin (RS232)
5	GND	Ground
6	DSR	COM1 Serial Port, DSR pin (RS232)
7	RTS	COM1 Serial Port, RTS pin (RS232)
8	CTS	COM1 Serial Port, CTS pin (RS232)
9	DCD	COM1 Serial Port, DCD pin (RS232)

Table 4: Pinout COM1 connector



3.4 Serial Port COM2

To create an RS232 serial link on port COM2 of the Remote Access Gateway IGW/925-W connect the adapter cable and the null-modem cable like shown in the figure below.

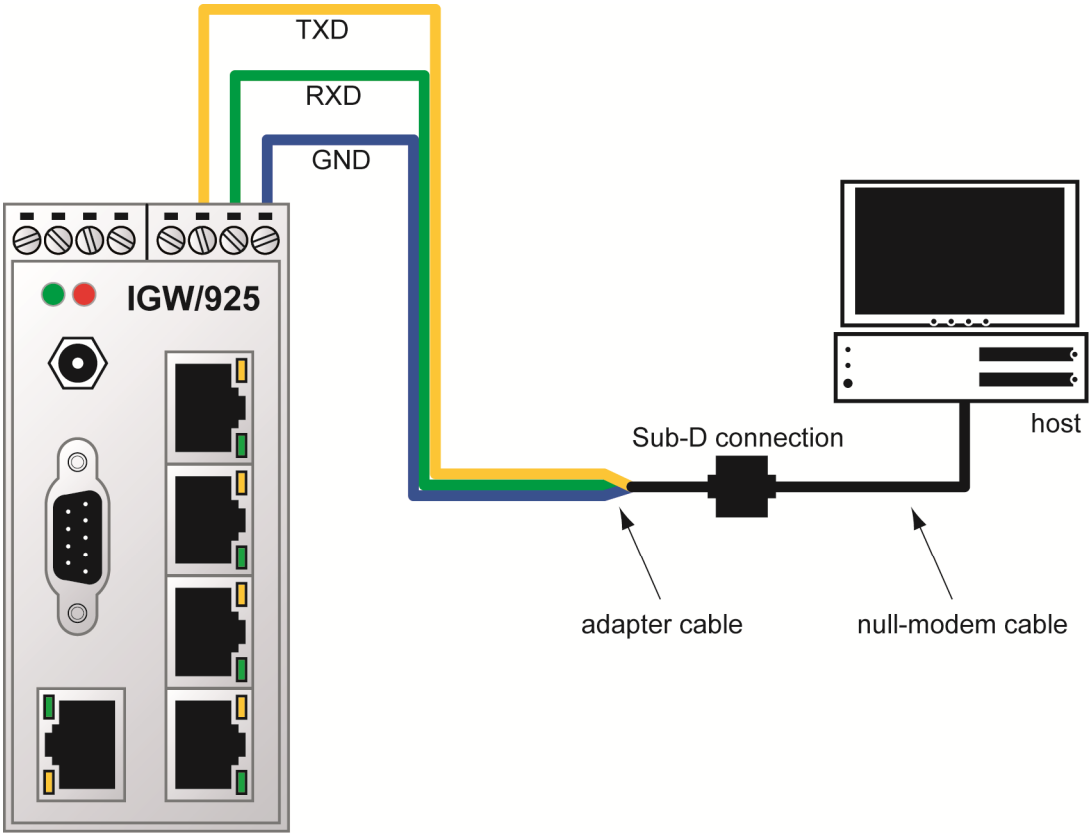


Figure 2: RS232 link on serial port COM2

Terminal	Signal
B2	COM2 Serial Port: TXD (RS232), RX/TX- (RS485)
B3	COM2 Serial Port: RXD (RS232), RX/TX+ (RS485)
B4	Ground

Table 5: Screw terminal COM2

3.5 Power Supply

The Remote Access Gateway IGW/925-W needs a supply voltage of 11 .. 28 VDC to work. Use the power adapter cable to provide the system with the necessary power like shown in the figure below.

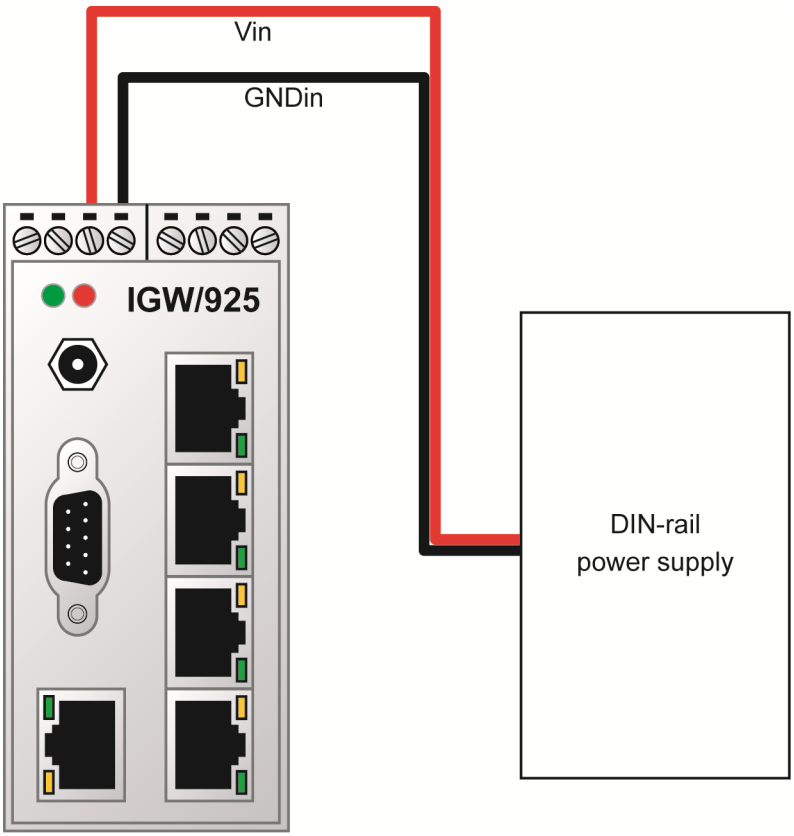
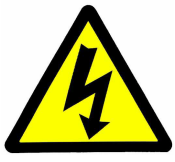


Figure 3: Power supply for the Remote Access Gateway IGW/925-W

Terminal	Signal
A3	Vin (11 .. 28 VDC)
A4	GNDin

Table 6: Screw terminal power

CAUTION!
Providing the Remote Access Gateway IGW/925-W with a higher voltage than the regular 11 .. 28 VDC ±10 % could cause damaged board components!



CAUTION!
Do NOT turn on the power supply while connecting the power adapter cable with the Remote Access Gateway IGW/925-W. This could cause damaged board components! First connect the power adapter cable and THEN turn the power supply on.

3.6 Semiconductor Relay Output

The Remote Access Gateway IGW/925-W offers a semiconductor relay output to switch an external alarm device with up to 30 VDC and 500 mA on and off.

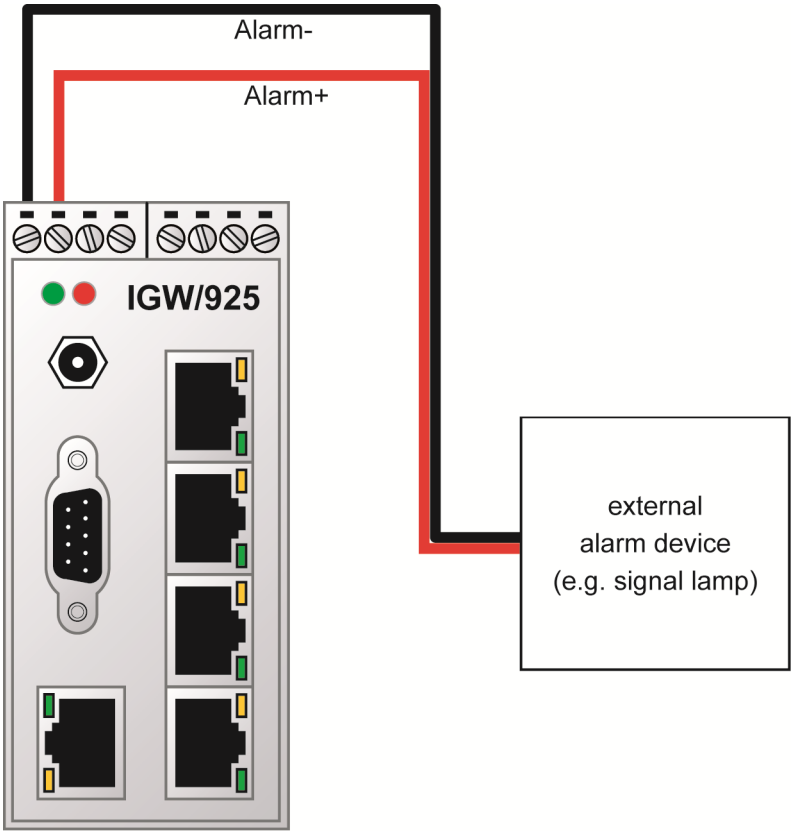
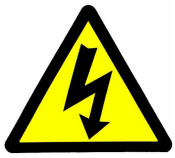


Figure 4: Connecting an external alarm device

Terminal	Signal
A1	Alarm- Semiconductor Relay Output (max. 30 VDC / 500 mA)
A2	Alarm+ Semiconductor Relay Output (max. 30 VDC / 500 mA)

Table 7: Screw terminal semiconductor relay output



CAUTION!
Using the alarm output with more than the regular 30 VDC and 500 mA could cause damaged board components!

4 HELPFUL LITERATURE

- IGW/92X-W first steps
- E2W/ESL2 hardware reference
- DIL/NetPC ADNP/9200 hardware reference

CONTACT

SSV Embedded Systems
Dünenweg 5
D-30419 Hannover

Phone: +49 (0)511/40 000-0
Fax: +49 (0)511/40 000-40
E-mail: sales@ssv-embedded.de

Internet: www.ssv-embedded.de
Forum: www.ssv-comm.de/forum

DOCUMENT HISTORY

Revision	Date	Remarks	Name	Review
1.0	2014-09-24	First version	WBU	ENE
1.1	2015-08-26	edited chapter 1.3	WBU	ENE