# Remote Access Gateway IGW/941
## with DNP/9535

# Hardware Reference

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# CONTENT

# 1    INTRODUCTION

This document describes the hardware components and the necessary cable connections of the Remote Access Gateway IGW/941.

## 1.1    Safety Guidelines

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

- The power supply should be in immediate proximity to the device.

- The power supply must provide a stable output voltage at 24 VDC ± 10%. The output power should be at least 10 W.

- Please pay attention that the power cord or other cables are not squeezed or damaged in any way when you set up the device.

- Do NOT turn on the power supply while connecting any cables, especially the power cables. This could cause damaged device components! First connect the cables and THEN turn the power supply on.

- The installation of the device should be done only by qualified personnel.

- Discharge yourself electrostatic 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.

- The case of the device should be opened only by qualified personnel.
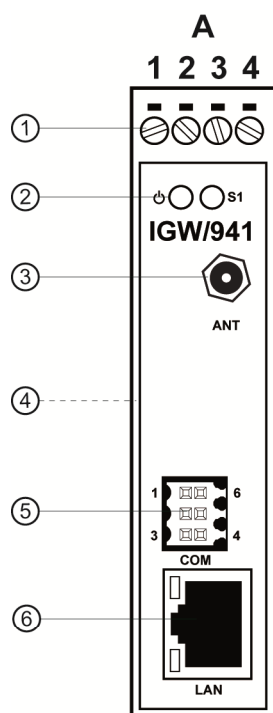
## 1.2    Conventions

| Convention | Usage |
|---|---|
| **bold** | Important terms and information |
| *monospace* | Filenames, Pathnames, program code, command lines |

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

## 1.3    Features and Technical Data

| | |
|---|---|
| **Processor** | |
| **Manufacturer / Type** | Atmel ATSAM-A5D35 SoC |
| **Clock speed** | 528 MHz |
| **Memory** | |
| **RAM** | 256 MB SDRAM |
| **Flash** | 4 MB NOR memory |
| **Storage media** | 1x internal microSD card holder |
| **Interfaces** | |
| **Ethernet** | 1x 10/100 Mbps (RJ45) |
| **Serial I/Os** | 1x RS485 serial port (screw terminal) |
| **COM (Service Port)** | 1x 6-pin connector |
| **Antenna** | 1x SMA male connector for LTE antenna |
| **Special Functions** | |
| **Watchdog** | 1x Timer watchdog (hardware-based, software-configurable)<br>1x Power supervisor (hardware-based) |
| **SIM card** | 1x Mini-SIM card holder (accessible from the outside) |
| **Wireless Module** | |
| **Mobile radio standards** | GSM/UMTS/HSPA+/LTE |
| **Transfer rates** | 100 Mbps peak download, 50 Mbps peak upload |
| **Frequency bands** | **LTE:** 2600 MHz (B7), 2100 MHz (B1), 1800 MHz (B3), 900 MHz (B8), 800 MHz (B20)<br>**WCDMA:** 2100 MHz (B1), 1900 MHz (B2), 850 MHz (B5), 900 MHz (B8)<br>**GSM/GPRS:** Quad-band 850/900/1800/1900 MHz |
| **Authentication** | PAP, CHAP, CHAT, none |
| **Supported APNs** | Telekom, Vodafone, 02, E-Plus, user-defined |
| **Displays / Control Elements** | |
| **LEDs** | 1x Power<br>1x System status (programmable)<br>1x LAN LED for Ethernet interface |
| **Electrical Characteristics** | |
| **Power supply** | 12 .. 24 VDC (typ. 24 VDC) from external power supply |
| **Power consumption** | < 15 W |
| **Mechanical Characteristics** | |
| **Protection class** | IP20 industrial case for 35 mm DIN-rail mounting |
| **Mass** | < 150 g |
| **Dimensions** | 112 mm x 100 mm x 22.5 mm |
| **Operating temperature** | 0 .. 60 °C |
| **Standards and Certifications** | |
| **EMC** | CE |
| **Environmental standards** | RoHS, WEEE |

# 2 OVERVIEW



① Screw Terminals A1 - A4 (Power + RS485)  ④ DIN-rail Mounting (backside)
② Power LED + User LED S1 (programmable)  ⑤ Service Port
③ Antenna Connector  ⑥ Ethernet Interface LAN1

**Figure 1: Overview Remote Access Gateway IGW/941**

# 3    PINOUTS

## 3.1    Ethernet Interface

| Pin | Name | Function |
|---|---|---|
| 1 | TX+ | 10/100 Mbps LAN, TX+ |
| 2 | TX- | 10/100 Mbps LAN, TX- |
| 3 | RX+ | 10/100 Mbps LAN, RX+ |
| 4 | --- | Bob-Smith Termination |
| 5 | --- | Bob-Smith Termination |
| 6 | RX- | 10/100 Mbps LAN, RX- |
| 7 | --- | Bob-Smith Termination |
| 8 | --- | Bob-Smith Termination |

**Table 2:    Pinout Ethernet interface**

| LED | Function |
|---|---|
| **Green (left)** | 10/100BASE-T link/activity |
| **Yellow (right)** | Not Connected |

**Table 3:    Ethernet LED functions**

## 3.2    Service Port

| Pin | Name | Function |
|---|---|---|
| 1 | RXD1 | COM1 Serial Port: RS232 RXD |
| 2 | TXD1 | COM1 Serial Port: RS232 TXD |
| 3 | GND | Ground |
| 4 | RCM | COM1 Serial Port: Remote Console Mode |
| 5 | CTS1 | COM1 Serial Port: RS232 CTS |
| 6 | RTS1 | COM1 Serial Port: RS232 RTS |

**Table 4:    Pinout service port**

⌐ = Cable bridge

## 3.3    Screw Terminal

| Terminal | Function |
|---|---|
| A1 | COM2 Serial Port: RS485 RX /TX+ |
| A2 | COM2 Serial Port: RS485 RX /TX- |
| A3 | Vin 24 VDC ±10% |
| A4 | Ground |

**Table 5:    Pinout screw terminal**

# 4    SIM CARD

The internal SIM card of the IGW/941 can be changed through the slot on the backside.

To remove the SIM card just push it gently with a screw driver until you hear a soft "click". The SIM card is ejected a few millimeters and can be pulled out easily.



**Figure 2: Removing the SIM card**

To insert the SIM card just push it by hand as deep as possible into the slot.

> **Please note:**
> Pay attention to the correct orientation of the SIM card like shown in **fig. 3**!

Then use a screw driver to push it gently further into the slot until you here a soft "click".



**Figure 3: Inserting the SIM card**

# 5 HELPFUL LITERATURE

- DNP/9535 hardware reference

- SSV Web ConfigTool User Manual

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# DOCUMENT HISTORY

| Revision | Date | Remarks | Name | Review |
|---|---|---|---|---|
| 1.0 | 2018-02-14 | First version | WBU | SSC |
| 1.1 | 2018-04-04 | Corrected the pinout of table 4 and table 5 | WBU | HNE |