IGW/400-UART
WLAN Device Server

First Steps

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For further information regarding our products please visit us at www.ssv-embedded.de

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1 INTRODUCTION

The WLAN Device Server IGW/400-UART integrates typical measurement and control interfaces into a 802.11b/g-compatible WLAN.

This very compact system acts as small, easy to use interface converter, which collects any data of industrial automation components and transmits it via WLAN.

This document describes the hardware components of the IGW/400-UART. For further information about the individual components of this product you may follow the links from our website at http://www.ssv-comm.de.

Our website contains a lot of technical information, which will be updated in regular periods.

1.1 Block Diagram

Figure 1 shows the block diagram of the IGW/400-UART. UART1 correlates with the RS232 connector (COM1) and the EI/Os correlate with the 14-pin environment interface of the IGW/400-UART.

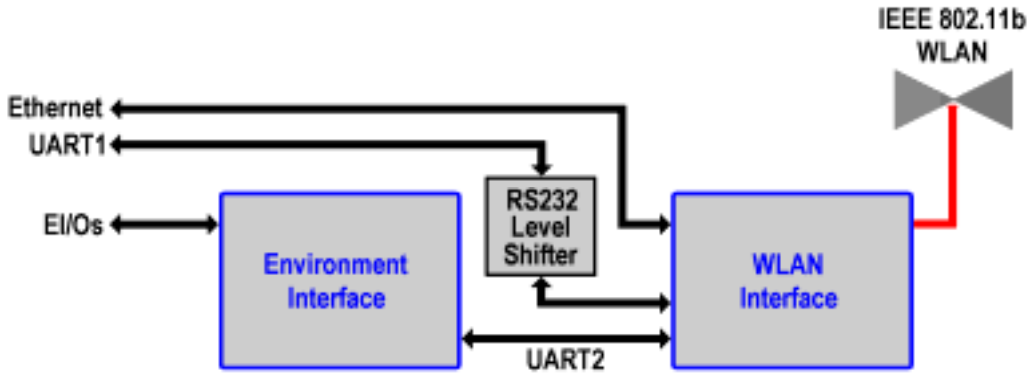

Figure 1: Block diagram of IGW/400-UART

1.2 Features IGW/400-UART

- One 14-pin environment interface with RS232/RS422
- One 10/100Mbps Ethernet interface (LAN)
- One RS232 connector (COM1)
- One reverse SMA connector for WLAN antenna
- One power LED (green)
- One WLAN activity LED (red)
- Size 131 x 70 x 26 mm (without antenna)

2 GETTING STARTED

2.1 Connecting the WLAN Antenna

The first step is to connect the WLAN antenna (which is part of the Starter Kit) with the provided interface at the backside of the IGW/400-UART. Please note, that the antenna has to be screwed until stop with the interface.

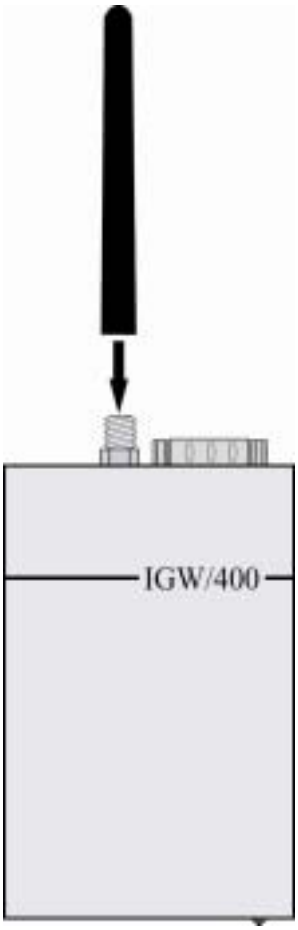

Figure 2: Connecting the WLAN antenna

The IGW/400-UART uses frequencies in the scope of 2.4 GHz. Therefore special antennas are needed. Please only use antenna equipment, which is offered resp. tested and released by SSV. A wrong antenna might lead to permanent damage to the IGW/400-UART!

2.2 Connecting the Plug-in Connector

Plug the 14 pin plug-in connector into the corresponding interface at the frontside of the IGW/400-UART. Then connect the two wires of the power supply cable with the 14 pin plug-in connector. For this purpose a screwdriver is needed, which is usually part of the Starter Kit. Please pay attention to the colors of the wires and to the pin assignment of the 14 pin plug-in connector.

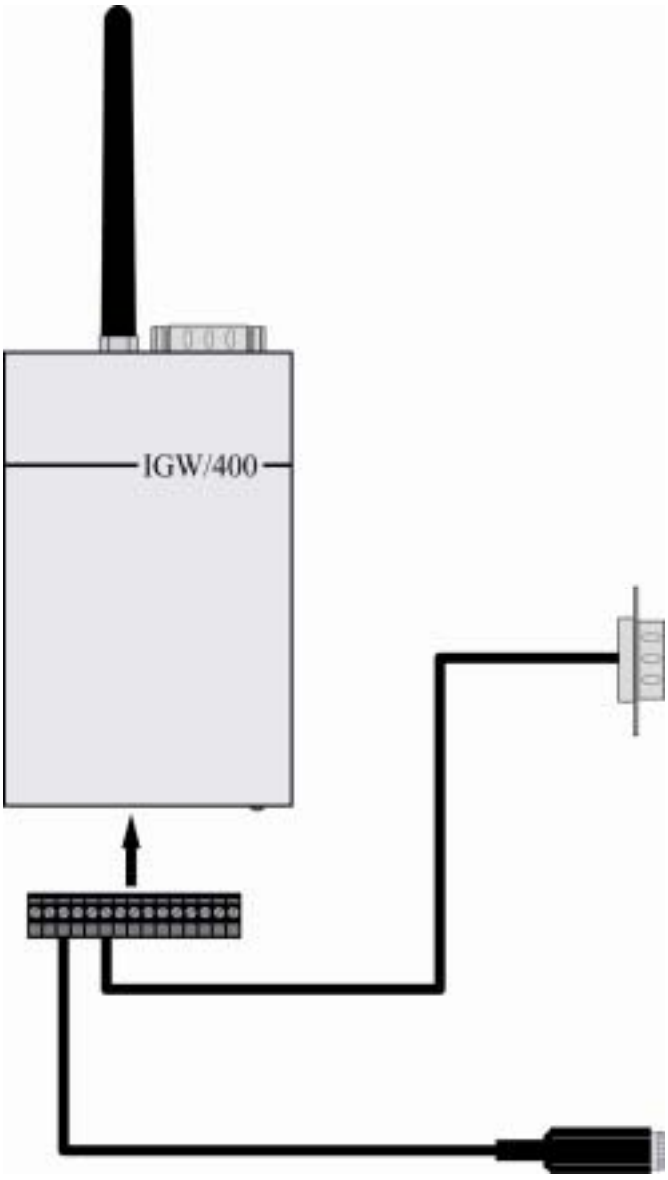

Figure 3: Connecting the plug-in connector

Connect now the four wires of the RS232 adapter cable with the 14-pin plug-in connector. Please pay also attention to the colors of the wires and to the pin assignment of the 14-pin plug-in connector.

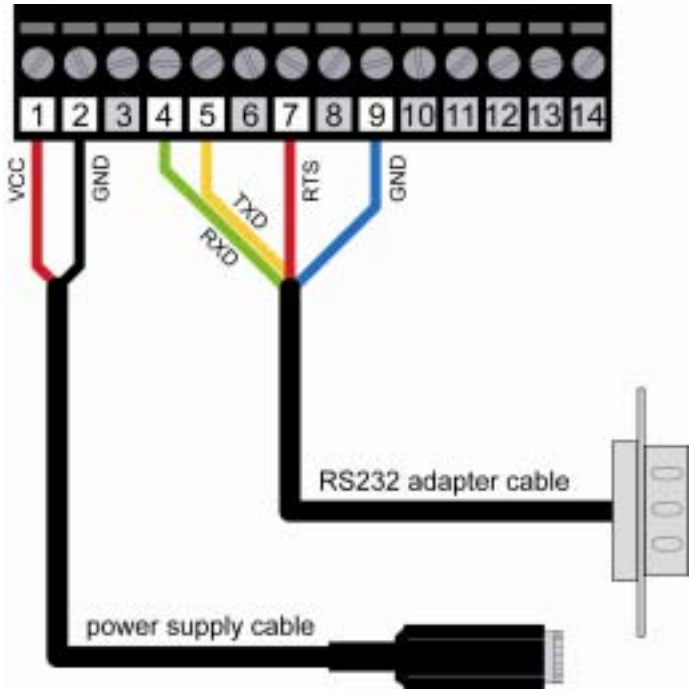

Figure 4: Pin assignment of plug-in connector

Pin	Wire color		Signal
1	red		VCC
2	black		GND

Table 1: Pin assignment of power supply cable

Pin	Wire color		Signal
4	green		RXD
5	yellow		TXD
7	red		RTS
9	blue		GND

Table 2: Pin assignment of RS232 adapter cable

Pin	Wire color		Signal
1	Not connected		
2	green		RXD
3	yellow		TXD
4	Not connected		
5	blue		GND
6	Not connected		
7	red		RTS
8	Not connected		
9	Not connected		

Table 3: Pin assignment of Sub-D connector of RS232 adapter cable

2.3 Connecting the Temperature Sensor SMT-160

Plug now the intelligent temperature sensor SMT-160 on the 9 pin Sub-D connector of the RS232 adapter cable. This sensor delivers temperature data to the RS232 interface of the IGW/400-UART permanently. This data should be transmitted to your PC via WLAN.

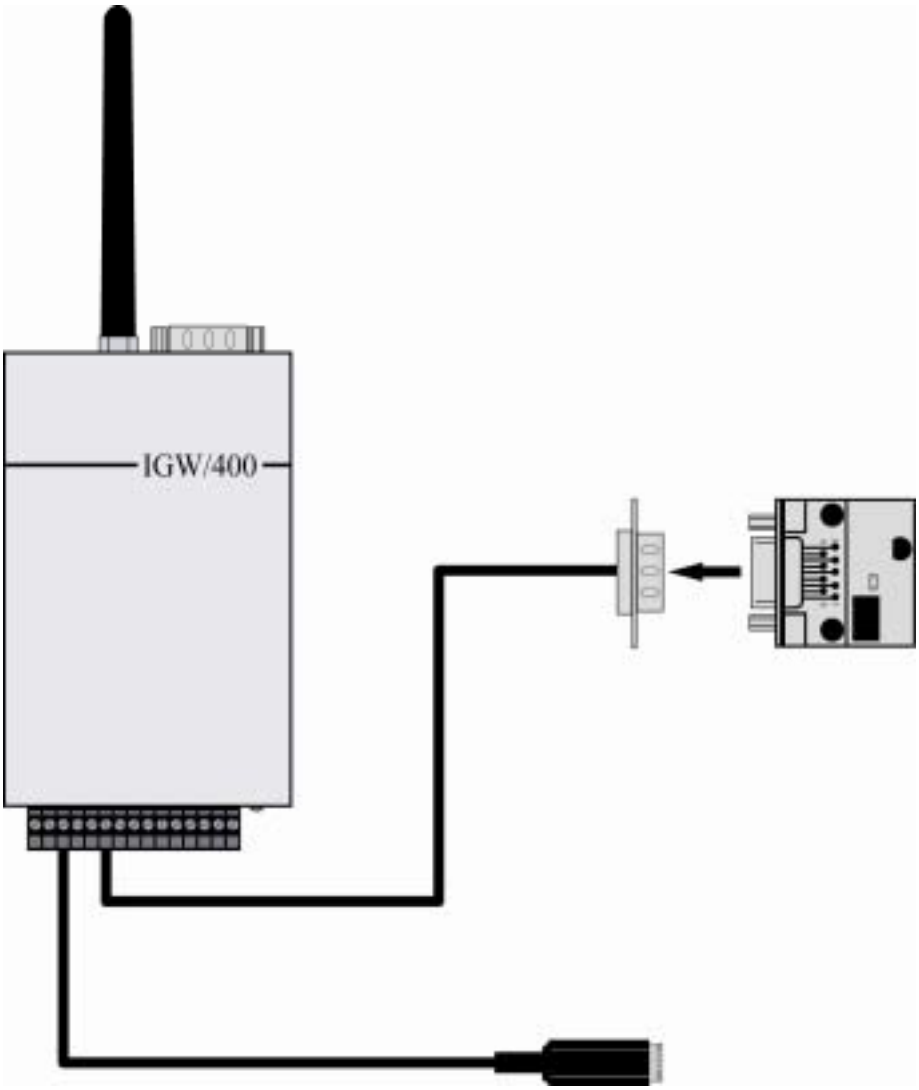

Figure 5: Connecting the temperature sensor

The temperature sensor SMT-160 has no case. Please avoid the direct touch of the traces of the SMT-160. The circuits on the SMT-160 can be damaged by electrostatic discharge.

2.4 Connecting the Power Supply

The IGW/400-UART is now ready for use. Connect the plug-in power supply which is part of the Starter Kit with the connector of the power supply cable. Plug the plug-in power supply into an outlet to provide the IGW/400-UART with power. Check if the red power LED at the frontside is on.

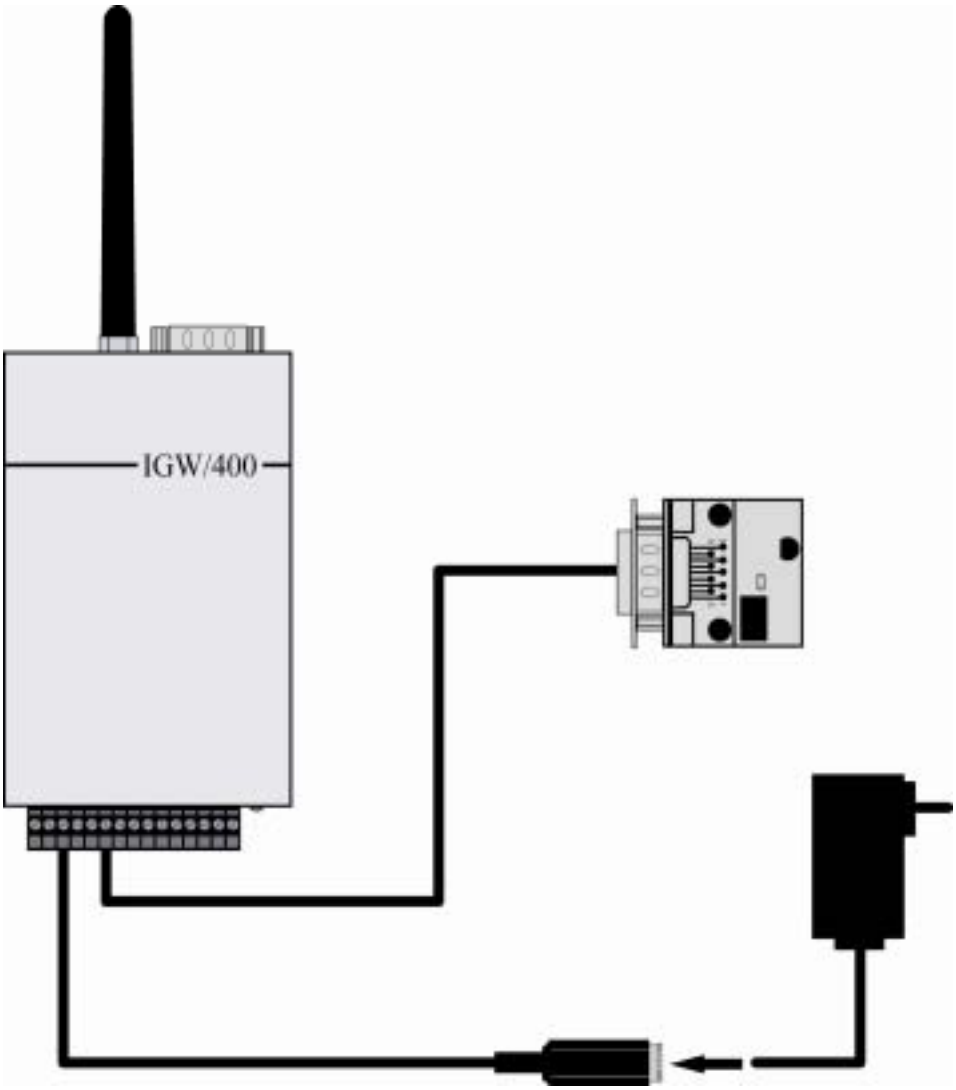

Figure 6: Connecting the power supply

Please pay attention to the polarity of the power connector: the **+ pole is in the center!**

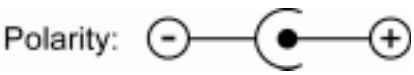

Figure 7: Polarity of the power connector

The IGW/400-UART is now accessible from your PC. Please note the settings of the WLAN interface (ex factory settings). The following table gives an overview.

Parameter	Setup Value
Network Interface	WLAN
Network Name	SSV_IGW400
Ad Hoc Mode Settings	Enable
Ad Hoc Mode Settings: Network Name	SSV_IGW400
Ad Hoc Mode Settings: Country	USA
Ad Hoc Mode Settings: Network Channel	11
IP Address	192.168.3.126
Network Mask	255.255.255.0
UART1 Settings	9.600 bps, N, 8, 1
UART2 Settings	9.600 bps, N, 8, 1
UART1 TCP/IP Access	TCP, Port 10001
UART2 TCP/IP Access	TCP, Port 10002
Wireless Network Security	None

Table 4: WLAN settings IGW/400-UART

For the first WLAN connection test you should adapt your PC to the ex factory settings of the IGW/400-UART for convenience.

2.5 Arranging and Testing the WLAN Connection on the PC

This step requires a PC with an IEEE 802.11b or IEEE 802.11g WLAN interface. This interface can be formed with an USB WLAN stick, a WLAN PC card or similar extensions. If you install such an extension, please follow the instructions of the manufacturer absolutely.

The WLAN interface of your PC can operate in two different modes: the **ad-hoc mode** and the **infrastructure mode**. The ad-hoc mode corresponds to a wireless point-to-point connection, e.g. your PC and the IGW/400-UART. The infrastructure mode is needed if you want to connect your PC with a WLAN access point. The software of your PC WLAN extension allows to choose between both operating modes. Details can be found in the manual of the manufacturer and in the help system of the WLAN extension.

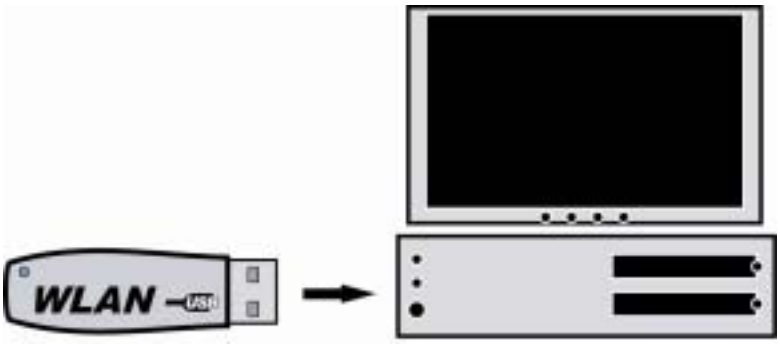

Figure 8: Arranging the WLAN connection

Set the WLAN interface of your PC to **ad hoc mode**. If your WLAN PC software allows it, search for available WLAN devices which run also in ad hoc mode. Most WLAN PC applications offer a button to start the search. The founded WLAN communication partners are shown in a small window. Usually you can choose your desired communication partner. Your WLAN PC software should find a communication partner with the identifier (network name / SSID) **SSV_IGW400**. Connect the WLAN interface of the PC with that device.

Older WLAN PC applications which do not support the automatic search for WLAN devices must be configured manually with the WLAN parameters of the IGW/400-UART. In that case choose the WLAN **channel 11** and the name (network name / SSID) „**SSV_IGW400**“.

Change the IP address for the WLAN interface of your PC to **192.168.3.1** and the subnet mask to **255.255.255.0**. On a Windows PC you can do that via the system settings. Refer to the Windows help for more information.

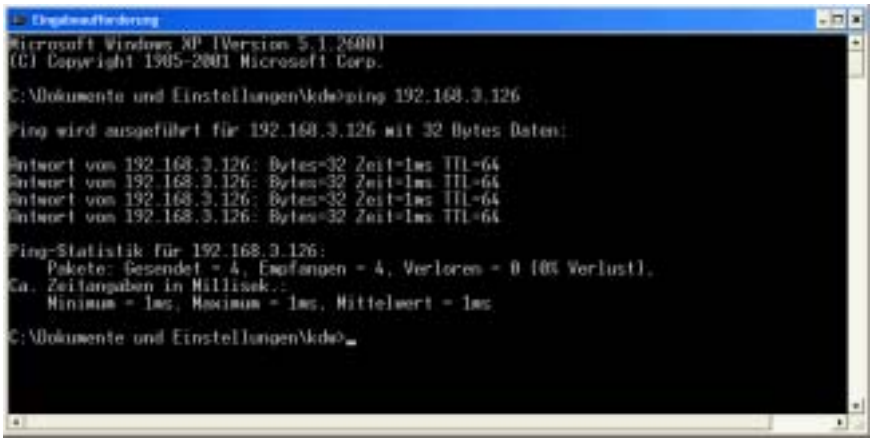

Figure 9: Testing the WLAN connection with *ping*

The IP address of the IGW/400-UART is set ex factory to **192.168.3.126**. Open a window with a command prompt on your PC and enter

```
ping 192.168.3.126
```

The connection between your PC and the IGW/400-UART will be tested. A succesful *ping* means that there is a running WLAN connection between both systems.

2.6 Accessing the Temperature Sensor

There is a running WLAN connection between your PC and the IGW/400-UART. Now it is possible to access the measured data of the temperature sensor SMT-160 via WLAN.

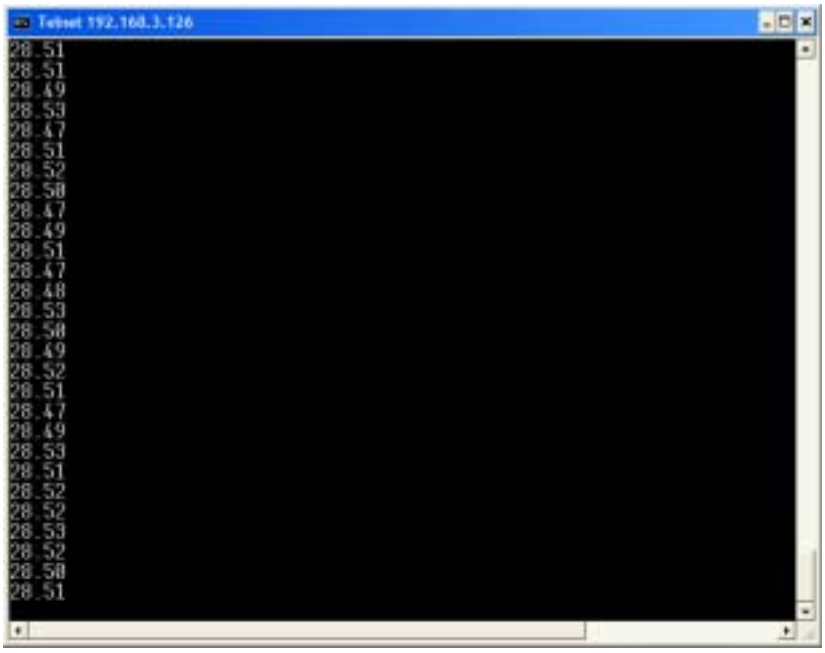

Figure 10: Accessing the temperature sensor

The simplest way to access the IGW/400-UART is Telnet. Open a window with a command prompt on your PC and enter

```
telnet 192.168.3.126 10002
```

Afterwards the measured data of the temperature sensor SMT-160 is shown continuously. By touching the sensor (**Attention:** please assure that you are NOT electrostatic charged!) you can manipulate the temperature measurement.

CONTACT

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1.0	2005-09-26	first version	WBU

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