

IGW/400-CAN ***WLAN Device Server***

Hardware Reference



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1 INTRODUCTION

The WLAN Device Server IGW/400-CAN integrates typical measurement and control interfaces into an IEEE 802.11b/g-compatible WLAN/WiFi Network.

This very compact system acts as small, easy to use interface converter, which collects any data of industrial automation components and transmits it via IEEE 802.11-based WLAN.

This document describes the hardware components of the IGW/400-CAN. 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-CAN. UART1 of the WLAN Interface correlates over a level shifter with the Sub-D RS232 connector. UART2 is internally connected to the Environment Interface. This subsystem is based on an ARM7TDMI microcontroller with 256 Kbytes flash and 16 Kbytes SRAM memory. The microcontroller implements the two CAN channels (CAN1, CAN2), one RS232 serial port (COM1) and two GPIOs with I2C and analog inputs.

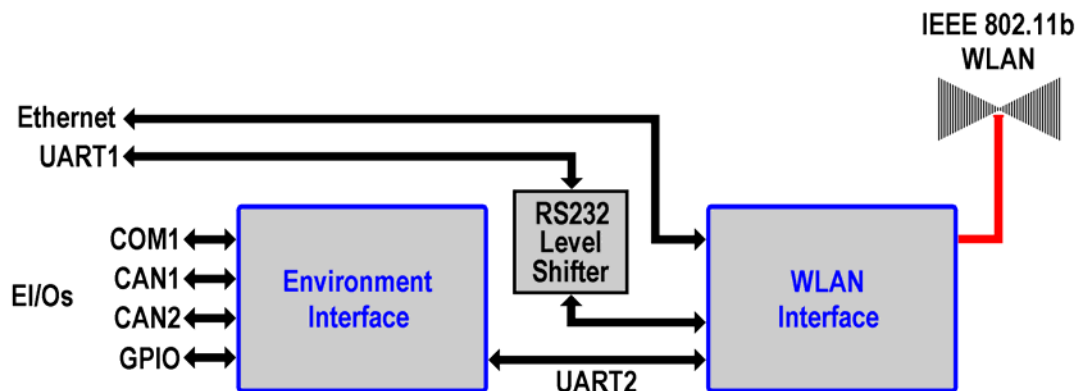


Figure 1: Block diagram of IGW/400-CAN

1.2 Features and Technical Data IGW/400-CAN

Main Functionality: Wireless Device Server with CAN and integrated TCP/IP network stack.

Wireless Interface

Wireless LAN	802.11b/g
Connection type	Antenna
Supported protocols	WEP, TCP/IP, UDP/IP, AutoIP, ARP, ICMP, SNMP, DHCP, TFTP, Telnet, HTTP

Environment Interface

Environment Interface	Active via 32-bit ARM7TDMI microcontroller
Environment I/O	RS232/ 2 x CAN/ 2 x GPIO
Connection type	14-pin plug connector
RS232	max. 230.400 bps, Signals: TxD, RxD
CAN	2 x 10 kbps – 1 Mbps; Signals: CAN-H, CAN-L
GPIO	I2C/2 x analog inputs/2 x PIO/capture, jumper configurable

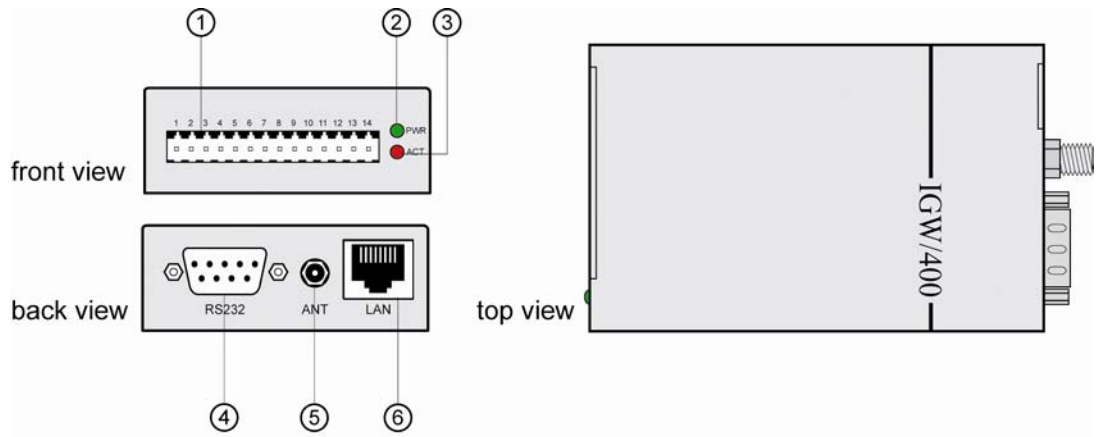
Further Interfaces

RS232	max. 921.600 kbps; Signals: DCD, RxD, TxD, RTS, CTS, DTR
Connection type	Sub-D, 9-pin
ISP	Signals: RXD, TXD
Ethernet	10/100 Mbps, automatic detection
Connection type	RJ-45

Other

LED Indicators	1 x supply voltage, 1 x wireless activity
Power input	6..30 VDC
Power consumption	max. 3 W
Protection degree	IP20
Operating temperature	-20 °C..70 °C
Dimensions (L x W x H)	70 x 26 x 131 mm (without antenna)
Mounting	Desktop, wall- or DIN rail

2 OVERVIEW



- ① 14-pin environment interface connector (EI/O)
- ② Power LED
- ③ WLAN activity LED
- ④ RS232 connector (UART1)
- ⑤ Reverse SMA antenna connector
- ⑥ 10/100 Mbps Ethernet interface

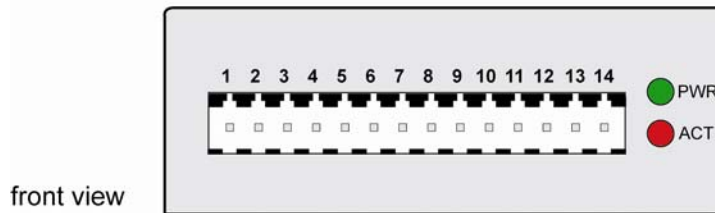


Figure 2: Overview IGW/400-CAN

3 COMPONENTS

This chapter describes the components of the IGW/400-CAN shown in chapter 2 and gives a short overview about their respective functions.

3.1 14-Pin Environment Interface

The environment interface is used to connect external devices to the two CAN channels, the RS232 interface (RxD / TxD only) and to the two GPIOs.

Furthermore the environment interface is used to connect the power supply unit via the power supply adapter cable to the pins 1 and 2 of the environment interface. The IGW/400-CAN needs a supply voltage of 6 - 30 VDC to work.

Caution: Providing the IGW/400-CAN with a supply voltage higher than 30 VDC could damage the IGW/400-CAN!

3.2 Power LED

The green power LED indicates a present supply voltage. This LED is on when the IGW/400-CAN is provided with a voltage of 6 - 30 VDC by the power supply. If this LED is off, check the connection between the power supply and the IGW/400-CAN. Check also if the power supply is set to 6 - 30 VDC. The default setting of the power supply is 12 VDC.

3.3 WLAN Activity LED

The red WLAN activity LED indicates activity on the WLAN interface. If this LED is off, check the WLAN connection settings of the IGW/400-CAN.

3.4 RS232 Connector (UART1)

The IGW/400-CAN is equipped with a standard RS232 connector named UART1. This interface comes with a 9-pin Sub-D male connector. The pin assignment of UART1 is identical to the COM port assignment of a PC, so it is possible to use a standard cable.

3.5 Reverse SMA Connector for WLAN Antenna

The reverse SMA connector is used to attach the WLAN antenna to the IGW/400-CAN.

3.6 10/100 Mbps Ethernet Interface

The IGW/400-CAN allows Ethernet connectivity with a speed up to 100 Mbps. The LAN interface of the IGW/400-CAN is a standard RJ45 Ethernet interface. The LAN interface is an alternative to the WLAN antenna. You cannot use the LAN interface and the WLAN antenna at the same time.

4 MECHANICAL DIMENSIONS

All length dimensions have a tolerance of 0.5 mm.

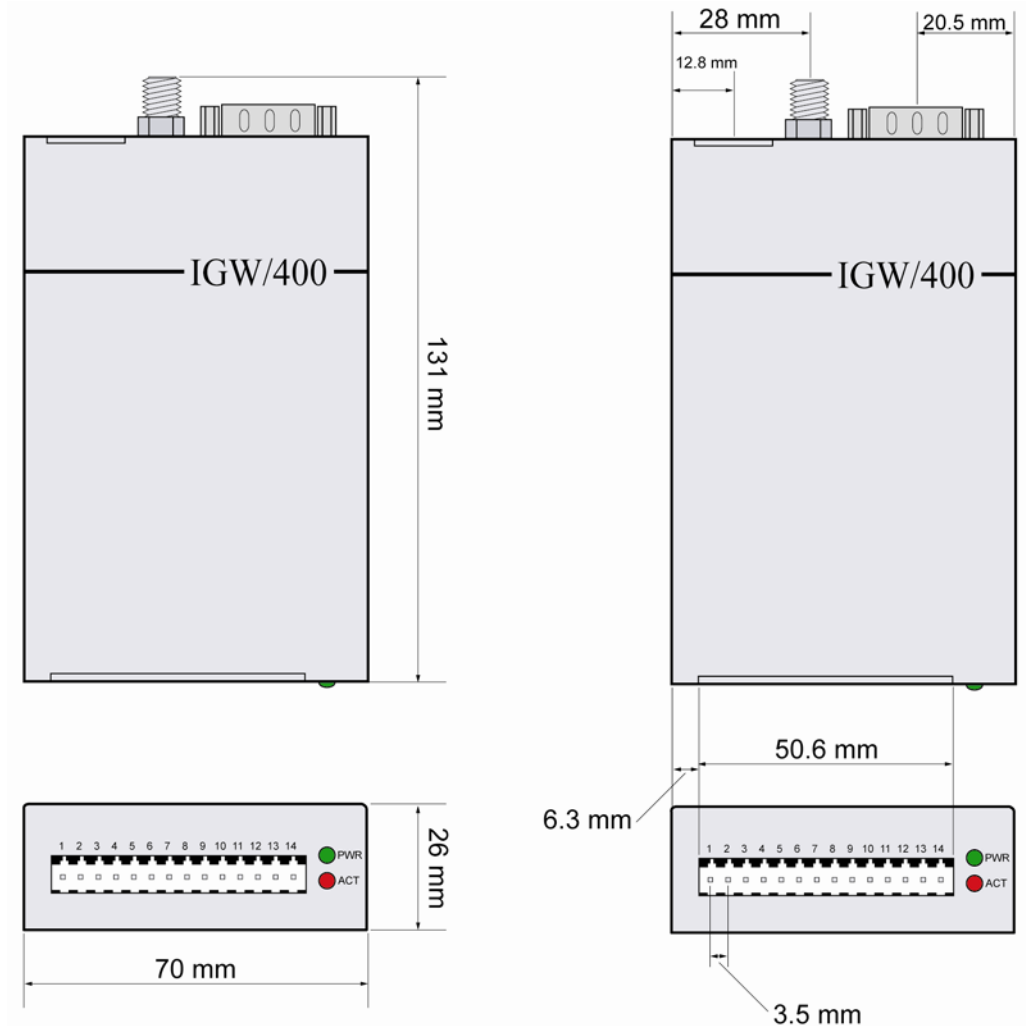


Figure 3: Mechanical dimensions of IGW/400-CAN

4.1 Mechanical Dimensions with DIN-Rail Mounting Set

All length dimensions have a tolerance of 0.5 mm.

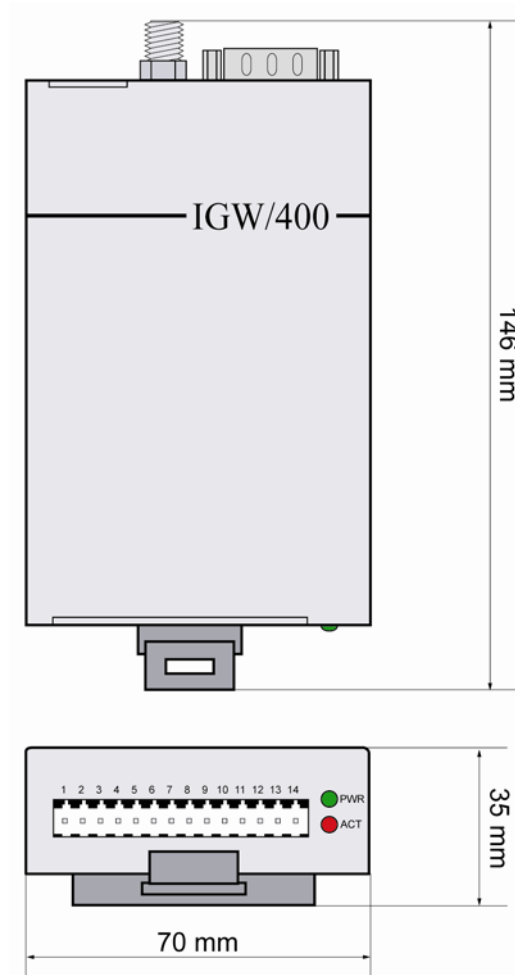


Figure 4: Mechanical dimensions of IGW/400-CAN with DIN-rail mounting set

4.2 Mechanical Dimensions with Wall Mounting Set

All length dimensions have a tolerance of 0.5 mm.

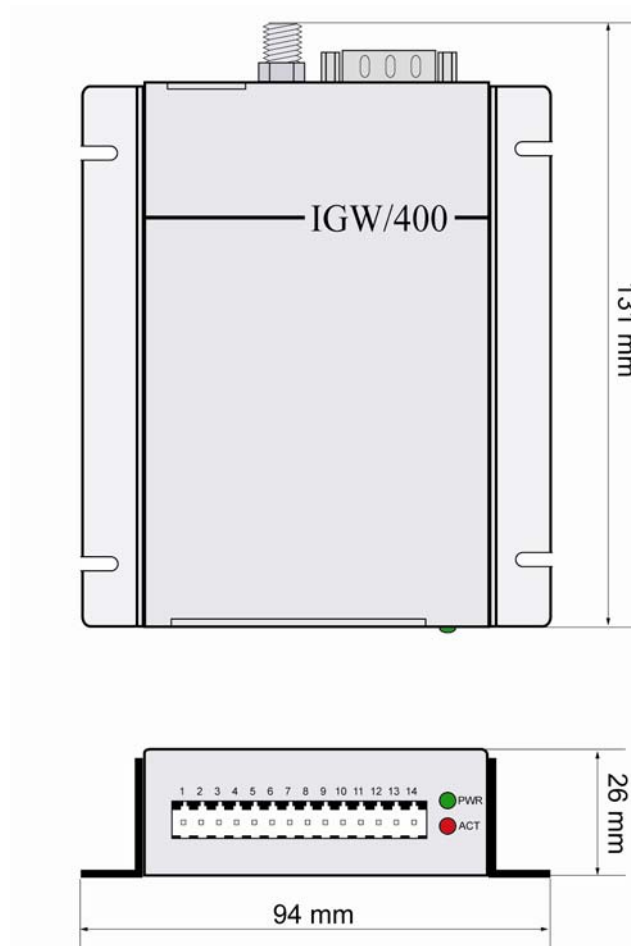


Figure 5: Mechanical dimensions of IGW/400-CAN with wall mounting set

4.3 Drilling Template for Wall Mounting Set

All length dimensions have a tolerance of 0.5 mm.

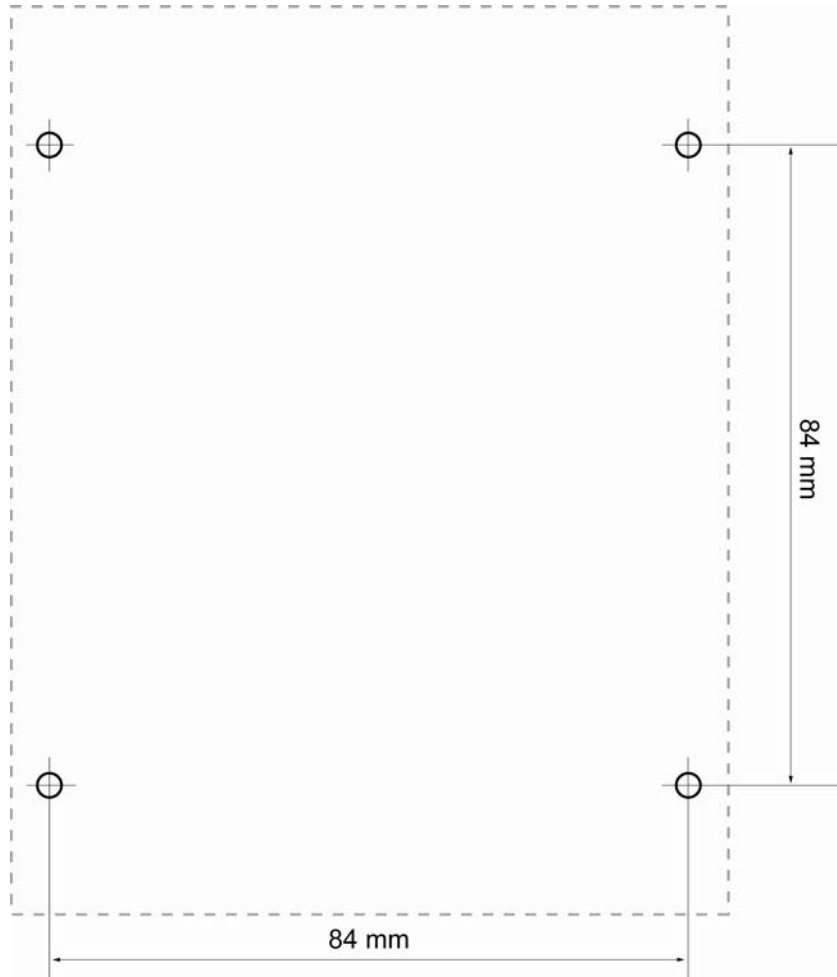


Figure 6: Drilling template for wall mounting set

5 PIN ASSIGNMENTS

5.1 14-Pin Environment Interface

Pin	Name	Function
1	Vin	6 – 30 VDC power input
2	GND	Ground
3	RXD	COM1 RS232 serial port, RXD pin
4	TXD	COM1 RS232 serial port, TXD pin
5	GND	Ground
6	GPIO1	I2C: SDA, ADC: IN1 (0 – 3 V)
7	GPIO2	I2C: SCL, ADC: IN2 (0 – 3 V)
8	Vout	3.3 VDC output (max. 100 mA)
9	CAN1-H	CAN1 interface, H level I/O
10	CAN1-TR	CAN1 Termination Resistor
11	CAN1-L	CAN1 interface, L level I/O
12	CAN2-H	CAN2 interface, H level I/O
13	CAN2-TR	CAN2 Termination Resistor
14	CAN2-L	CAN2 interface, L level I/O

Table 1: Pinout environment interface

5.2 RS232 Connector (UART1)

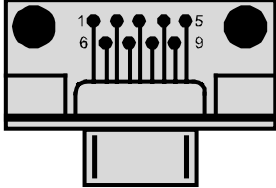
Top view	Pin	Name	Function
	1	DCD1	UART1 serial port, DCD pin
	2	RXD1	UART1 serial port, RXD pin
	3	TXD1	UART1 serial port, TXD pin
	4	DTR1	UART1 serial port, DTR pin
	5	GND	Ground
	6	---	Not connected
	7	RTS1	UART1 serial port, RTS pin
	8	CTS1	UART1 serial port, CTS pin
	9	---	Not connected

Table 2: Pinout RS232 connector (UART1)

Note: All UART1 port signals are on RS232 level. There is no TTL level available on UART1.

5.3 10/100 Mbps Ethernet Interface

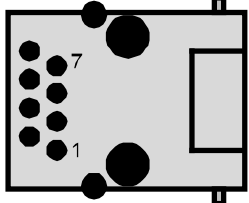
Top view	Pin	Name	Function
	1	TX+	10/100 Mbps LAN, TX+ pin
	2	TX-	10/100 Mbps LAN, TX- pin
	3	RX+	10/100 Mbps LAN, RX+ pin
	4	---	Not connected
	5	---	Not connected
	6	RX-	10/100 Mbps LAN, RX- pin
	7	---	Not connected
	8	---	Not connected

Table 3: Pinout 10/100 Mbps Ethernet interface

6 CAN TERMINATION

It is possible to activate an internal termination resistor for CAN1 and CAN2.

To activate the internal termination resistor for CAN1, just connect pin 9 and pin 10 of the environment interface with a simple cable bridge as shown in the following figure.

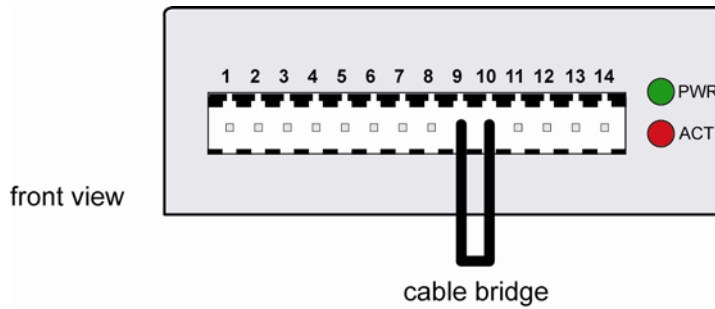


Figure 7: Cable bridge to activate the internal CAN1 termination resistor

To activate the internal termination resistor for CAN2, just connect pin 12 and pin 13 of the environment interface with a simple cable bridge as shown in the following figure.

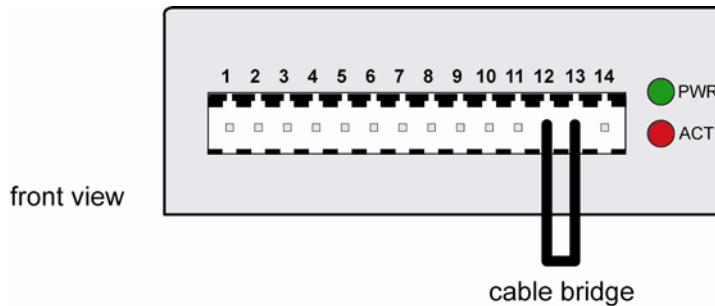


Figure 8: Cable bridge to activate the internal CAN2 termination resistor

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1.0	2005-10-31	first version	WBU
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