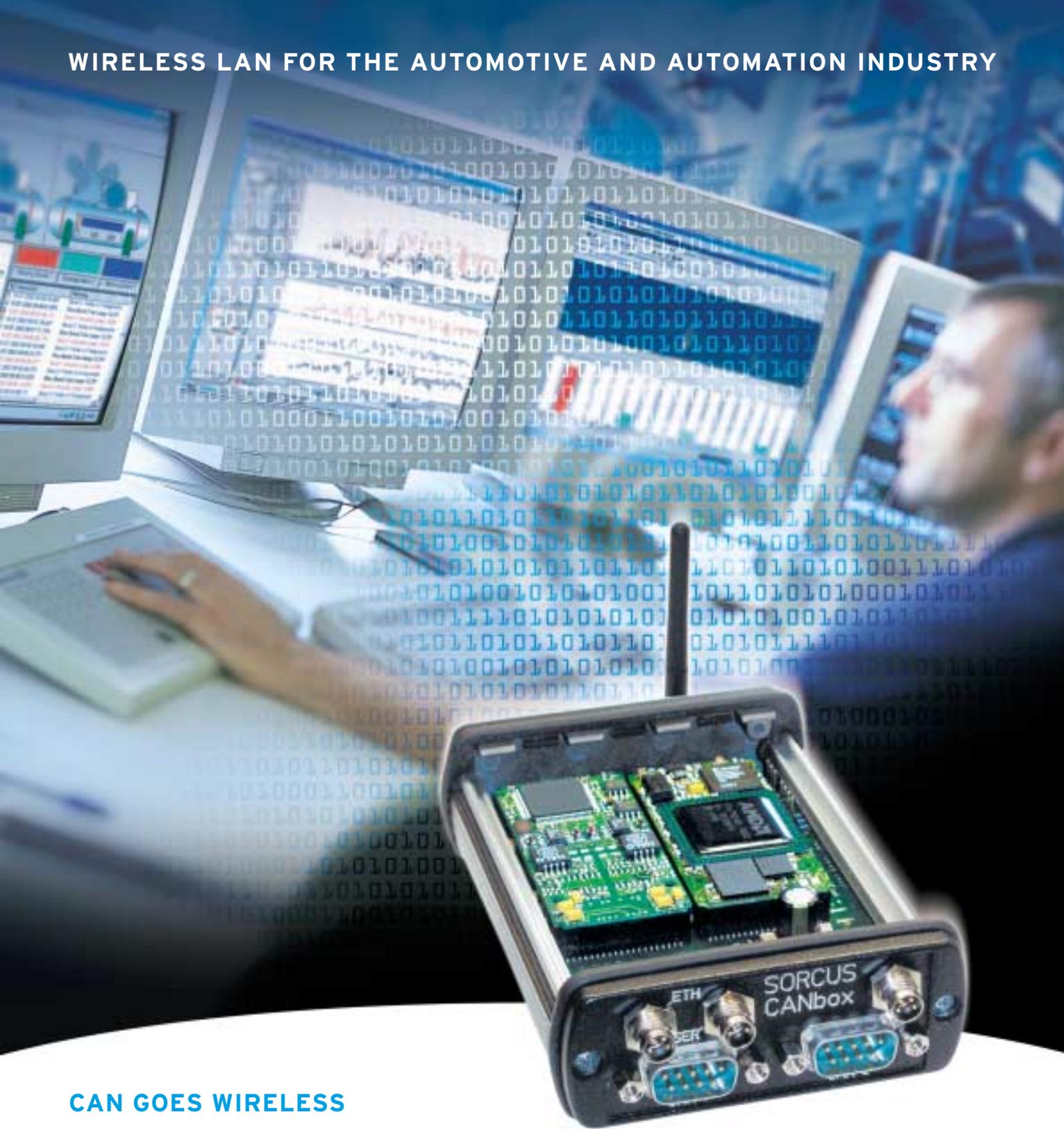


WIRELESS LAN FOR THE AUTOMOTIVE AND AUTOMATION INDUSTRY



CAN GOES WIRELESS

# CANbox: Dual CAN to WLAN Converter

CANbox, MAX2box, MAX3box

SORCUS 

# CANbox

## Dual CAN to WLAN Converter

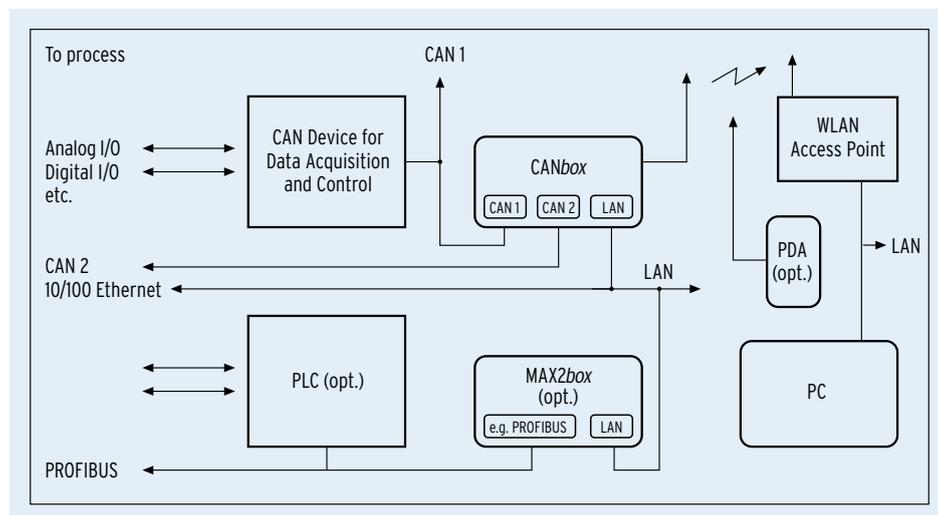
With the SORCUS CANbox, data from one or two CAN buses can be transmitted and received via WLAN or Bluetooth. In addition, data can be transferred via a LAN interface (10/100 Mbps Ethernet), which is also provided by the CANbox.

Both CAN and Ethernet interfaces are individually isolated. An RS-232 interface is also provided, e. g. for maintenance. The CANbox has an RF-proof metal casing and is no bigger than a pack of cigarettes.

### Time Stamp and Buffer

All CAN telegrams are transmitted without data loss even when both CAN buses are under maximum load. If the WLAN connection is temporarily disrupted or broken, data is automatically buffered and transmission will be repeated. Up to 32 MByte RAM (plus 32 MByte Flash) is available. All CAN telegrams in the CANbox receive a time stamp to ensure chronological order is maintained. In addition, the CANbox resp. the CAN controllers can be configured only to accept specific identifiers (acceptance filter), to assign

Example of a machine connected to a PC using a CANbox with WLAN. The LAN interface of the CANbox can be used to connect additional interfaces, e.g. a PLC via PROFIBUS provided by a MAX2box. In addition to the PC or even instead of it, a PDA (Personal Digital Assistant) can be used to visualize the data and control the process by running ARGUSpda. ARGUSpca and ARGUSpda are complete software packages available from SORCUS.



telegrams for transmission, and to store telegrams with specific identifiers in separate buffers for later retrieval as needed.

### Secure Transmission

Transmission takes place via TCP/IP. Both the MAC address and the desired security protocol are configurable using the PC software supplied with the CANbox. The WLAN connection can be established via an access point or directly to another WLAN subscriber, e. g. notebook, PDA or another CANbox. The CANbox can also take over access point functionality and also run in ad-hoc mode.

### Power Supply Tailored to Automotive and Industry Conditions

Power supply for the CANbox can use the on-board power supply of an automobile, and can range from 6 to 60V DC. This wide range also covers most of all power supply voltages commonly used for industrial control systems.

### Modular Structure

The CANbox features a modular internal structure comprising standard MAX modules from the SORCUS X-Bus range, e.g. X-MAX-E resp. X-MAX-400 and X-CAN-2i. Individual components can thus be replaced rapidly and easily. For example, the X-CAN-2i module that provides the two galvanically isolated CAN interfaces is available in several variations with different CAN bus drivers: 2 x high-speed, 2 x fault-tolerant, resp. 1 channel high-speed and 1 fault-tolerant. A future version will additionally include two individually isolated LIN interfaces. All variations can be used in the CANbox, supplying users with an array of options to meet their specific requirements.

### CANbox At a Glance

- All-in-one device for CAN to WLAN or Bluetooth
- 2 CAN interfaces, individually isolated
- WLAN or Bluetooth on-board
- LAN interface 10/100 on-board
- USB-OTG (optional)
- RS-232 serial interface
- Up to 32 MByte RAM
- Up to 32 MByte Flash
- RTC with battery backup
- Incl. driver for Windows PCs and PDAs
- Libraries compatible with Vector CANcardX and XL
- PC configuration software incl.
- Dimensions (excl. antenna)  
only 85 x 36 x 125 mm (W x H x D)
- Power supply 6...60V DC incl. 42V automotive

### Compatible Software Interface

The accompanying libraries enable the CANbox to be easily integrated into any other software. Identifiers can be received and transmitted via convenient function calls without the user needing to attend to WLAN transmission.

CAN users will particularly appreciate the CANbox for its widespread compatibility to the libraries of the widely used CANcardX resp. XL on the LAN side. CANcardX resp. XL is a PCMCIA card that has been adopted as a quasi-standard for wired connection of notebooks to CAN networks. This means that the range of applications of the CANbox is virtually unlimited.

Of course, the CANbox is also supported by the SORCUS standard software packages ARGUS<sub>pc</sub> and ARGUS<sub>pda</sub>.

### Many Applications in the Automotive and Automation Industry

In automotive production, for example, fault diagnosis can be performed via a remote link-up to vehicles moving along a conveyor belt. Similarly, in supplier industries components can be tested or deliveries prepared. During test drives, the "Wireless CAN" of the CANbox allows flexible transmission of currently measured data from the engine compartment to the passenger compartment for online evaluation on a notebook or PDA. There, data can be stored continuously and displayed in graphic form and visualized in realtime.

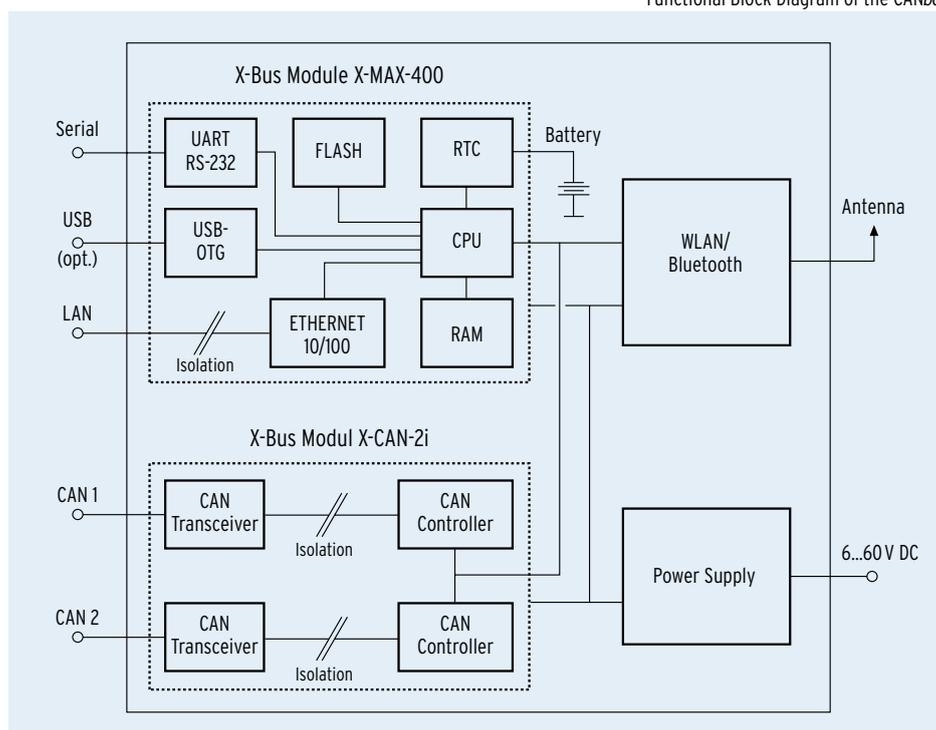
In automation technology, online room-to-room or building-to-building connections can be set up immediately, with no need for complex installation. Decentralized, independent islands can be set up flexibly, and operated and configured from anywhere. Wireless coupling to other fixed networks creates particularly broad scope for conversion or system extension. The CANbox runs at an ambient temperature range of -20°...+70°C, or even -40°...+85 °C without

the WLAN/Bluetooth wireless module built in. For primarily mobile use, the rugged, compact design of the CANbox is simple to stow without the need for special installation. For stationary use, the unit can be DIN rail or screw mounted.

Teamwork in perfection:  
SORCUS CANbox and PDA



Functional Block Diagram of the CANbox



## Enhanced Options with MAX2box and MAX3box

Replacement of the CAN module X-CAN-2i in the CANbox with 2 PROFIBUS interfaces (X-DPS-2i) or 8 isolated serial interfaces (X-COM-8i) immediately opens up a host of further application options. A general version of the CANbox, known as MAX2box, offers external access to all interfaces by providing all 40 I/O pins of the "users module" on a 44-pin HD-Sub connector. In addition, there will be another box available with even more functionality. It is called MAX3box and offers 3 slots for MAX modules, thus one CPU module, two I/O modules and two 44-pin HD-Sub connectors.

Screw terminals and other connectors can be used with corresponding adapters. The MAX2box additionally includes a CF card slot, e.g. for a Flash card, microdrive, or WLAN card. All MAX modules can be used with both boxes. The power supply voltage is the same as is for the CANbox, i.e., 6...60V DC.



Enhanced options: SORCUS MAX2box

### MAX2box Features

- 2 slots for MAX modules: CPU and I/O module
- HD-Sub 44 connector for the I/O pins
- LAN 10/100, RS-232 and USB-OTG interface
- CF card slot for Flash, HDD or WLAN/Bluetooth
- Can be used with all MAX modules
- LEDs for power and LAN
- Power supply 6...60V DC (incl. 42V)
- Dimensions: 85 x 36 x 125 mm (W x H x D)
- Operating temperature:  
0...70°C (opt. -40...85°C)
- Tabletop, DIN rail or screw mounted
- Screw terminal adapter for HD-Sub 44 available

### MAX3box Features (preliminary information)

- 3 slots for MAX modules: CPU module and 2 I/O modules
- 2 HD-Sub 44 connectors for the I/O pins
- Can be used with all MAX modules
- LAN 10/100, USB-OTG and RS-232 interface
- MMC/SD card slot for FLASH or SDIO-card
- WLAN/Bluetooth module internally (optional)
- LEDs for power, LAN and WLAN/BT
- Power supply 6...60 V DC (incl. 42V)
- Dimensions: 105 x 36 x 149 mm (W x H x D)
- Operating temperature: 0..70°C (opt. -40..85°C)
- Tabletop, DIN rail or screw mounted
- Screw terminal adapter for HD-Sub 44 available

Distributor

### Technical Data

Parameter	CANbox	MAX2box	MAX3box (prelim.)
Slots for MAX modules (total)	2	2	3
Slots for I/O modules	1	1	2
Internal slot supply voltage/s	3.3 V	3.3 V, +/-12 V	3.3 V, +/-12 V
MAX modules included	X-MAX-E or -400, X-CAN-2i	— —	— —
Ext. memory and I/O card slots	—	1 x CF card	1 x MMC/SD card
Wireless (internal)	WLAN and/or Bluetooth	—	WLAN and/or Bluetooth
10/100 Mbps Ethernet	10 (opt. 100)	10/100	10/100
RS-232	1	1	1
USB	—	OTG	OTG
optional	—	Host, OTG, Device	Host, OTG, Device
External power supply	6...60V DC	6...60V DC	6...60V DC
Operating temperature (optional)	-20...70°C	0..70°C (-40..85°C)	0..70°C (-40..85°C)
Dimensions (W x H x D) (excl. antenna)	85 x 36 x 125 mm	85 x 36 x 125 mm	105 x 36 x 149 mm



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