

## CANbox<sup>®</sup>

## Preliminary Datasheet (4/07)

### Special Features

- Complete device to convert two CAN channels to WLAN and back (Router)
- Two CAN interfaces, individually isolated
- WLAN and/or Bluetooth on-board
- LAN interface on-board
- Three USB interfaces (optional): USB-Host, USB-OTG and USB-Device
- Serial interface RS-232
- Up to 32 MByte RAM
- Up to 32 MByte Flash
- RTC, with battery back-up
- CF-Card Slot
- Incl. drivers for Windows PCs and Pocket PC
- Compatibel with Vector CANcardX and XL
- Incl. software for configuration and programming examples
- Dimensions only 113 x 83 x 13 mm
- Power supply 8...60V DC incl. 42V automotive

### General Description

The CANbox<sup>®</sup> can send and receive CAN data via one or two CAN interfaces, add a time stamp, buffer the data and transmit them wirelessly via WLAN and/or Bluetooth. Alternatively, the data can be sent via a 10 BaseT resp. 100 BaseTx Ethernet interface. Both CAN interfaces and the Ethernet interface are individually galvanic isolated. In addition, a serial RS-232 interface is provided for service requirements. Depending on the configuration, the CANbox<sup>®</sup> can be equipped with a faster CPU module with 400 MHz ARM CPU, Ethernet 10/100 BaseTx and 3 x USB interfaces (1 x Host, 1 x OTG and 1 x Device).

### Software of the CANbox<sup>®</sup>

The software of the CANbox<sup>®</sup> is based on standard components made by SORCUS, like e.g. the real time multitasking operating system OsX and the drivers. All CAN messages are buffered in RAM. Thereby, the messages of one CAN interface can be filtered by configurable identifiers and store them in separate buffers. The driver software guarantees that no message can be lost.

X-Bus<sup>®</sup>, MAX2<sup>®</sup>, MAX3<sup>®</sup>, MAX4<sup>®</sup>, MAX5<sup>®</sup>, MAX6<sup>®</sup>, MAX8<sup>®</sup>, MAX9<sup>®</sup>, MAX-Module<sup>®</sup>, CANbox<sup>®</sup> and CEoX<sup>®</sup> are registered trade marks of SORCUS Computer GmbH.

Errors and technical improvement may change these data.



Fig. 1: CANbox<sup>®</sup>

### Hardware of the CANbox<sup>®</sup>

The CANbox<sup>®</sup> is equipped with 2 X-Bus<sup>®</sup> modules, one is a CPU module and the other is an I/O module, in this case being an X-CAN-2i. The CPU module as well as the I/O module can be exchanged with other X-Bus modules, e.g., the CAN module can be replaced by an X-DPS-2i with 2 isolated PROFIBUS slave channels or by an X-COM-8i, providing 8 individually isolated RS-232, RS-422 or RS-485 interfaces.

### Power supply

The CANbox<sup>®</sup> offers various possibilities for power supply. A voltage between 8V and 60V DC is required.

### Operating temperature

The CANbox<sup>®</sup> can operate in a temperature range from -20 to +70°C, if it is equipped with a WLAN interface. If not, the operating temperature range is from -40 to +85°C.

### Remote service

The CANbox<sup>®</sup> can be supervised via any of the on-board interfaces. In addition, it can be configured and reprogrammed.

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### WLAN characteristics

The on-board WLAN module can operate in adhoc-mode as well as with an access point. In addition, the CANbox<sup>®</sup> can provide the services of an access point. Only the firmware has to be changed.

### OEM versions

The fully equipped PC board of the CANbox<sup>®</sup> is available without case and without X-Bus<sup>®</sup> modules. Thereby, it can be built into a customer's own case. OEM versions are available in four different versions: CANbasis-SCo, CANbasis-OEM, CANbasis-IPE, .

### Encryption

A WEP encryption can be added with 64-Bit or 128-Bit. Up to 4 Keys can be used in the CANbox<sup>®</sup>.

### Router Function

Using two CANbox<sup>®</sup>es, a router function can be established using the software coming with the CANbox<sup>®</sup>. CAN messages can be transferred from CANbox<sup>®</sup> 1 to WLAN resp. LAN and then back to CAN using the second CANbox<sup>®</sup>. The time delay is variably configurable via a buffer. After configuration, the CANbox<sup>®</sup>es can operate stand-alone.

**Table 1:** Technical Data CANbox<sup>®</sup> (related to production state B3)

Parameter	CANbasis-SCo	CANbasis-OEM	CANbasis-IPE	CANbasis-LAN	Unit	Note
Slots for X-Bus <sup>®</sup> modules	2	2	2	2	-	
Wireless interface (WLAN, Bluetooth)	1 x WLAN 1 x BT	-	1 x WLAN 1 x BT	-	-	
Connector for antenna (SMA-connector)	yes	-	-	-	-	
Number of CAN interfaces	2	2	2	2	-	
CAN interface, individually isolated	yes	yes	yes	yes	-	
Type	2 x High Speed	2 x High Speed	2 x High Speed	2 x High Speed	-	Alternatively, fault tolerant or mixed possible
D-Sub-9 connectors for the CAN interfaces	2 male	-	-	-	-	
LAN connectors, number	1	1	1	1	-	
Type	10/100	10/100	10/100	10/100	-	
Service interface (RS-232)	1	1	1	1	-	
Battery with battery holder (for RTC)	1	1	-	1	-	
Power consumption (incl. X-MAX-E and X-CAN-2i)	6,3...8,5	6,3...8,5	6,3...8,5	6,3...8,5	W	@8V...48V
Power supply (incl. 42V automotive)	8 ... 60	8 ... 60	8 ... 60	8 ... 60	V DC	
Operating temperature	-20 ... 70	-40 ... 85	-20 ... 70	-20 ... 70	°C	
Dimensions	113 x 83 x 13	113 x 83 x 13	113 x 83 x 13	113 x 83 x 13	mm	
Weight	86	62	50	62	g	

**Table 2.:** Ordering information (see also [www.sorcus.com](http://www.sorcus.com))

CANbox <sup>®</sup> Type	Ordering number	CPU module	CAN module	Operating temperature	Status (24.4.2007)
CANbox <sup>®</sup> complete	FM-3989	X-MAX-E	X-CAN-2i	-20...85°C	in produktion B3
CANbasis-SCo	FM-3832	X-MAX-E	X-CAN-2i	-20...85°C	in produktion B3
CANbasis-IPE	FM-4140	X-MAX-E	X-CAN-2i	-20...85°C	in produktion B3
CANbasis-OEM	FM-4222	X-MAX-E	X-CAN-2i	-20...85°C	in produktion B3