Wir leben Elektronik!
We live electronics!

Sontheim

Interfaces | Gateways

Overview of our CAN Interfaces and Gateways

Sontheim Overview

We are your close partner with our innovative portfolio of standardized and customer-specific products and comprehensive support capabilities.

Make your decision a one-stop issue. Every part of our systems is developed, engineered and manufactured in our in-house production and development facilities.

We are working closely together with universities and educational institutions of the region and realise important R&D projects.

We are reinvesting into new technologies, doing pioneers' work in the hardware and software development.

Our driven team of motivated and qualified specialists creates specifically tailored solutions for you.

We are happy to support you in every step of your project – especially our project teams and product manager.


CERTIFICATE

sontheim Industrie Elektronik GmbH

ISO 9001:2008

DEKRA Certification GmbH hereby certifies that the company

Sontheim Industrie Elektronik GmbH

Scope of certification:
Development, manufacturing and distribution of industrial electronics

Certified location:
D-87437 Kempten / Allgäu, Georg-Krug-Straße 2

has established and maintains a quality management system according to the above mentioned standard. The conformity was adduced with audit report no. A15011231.

This certificate is valid from 2015-03-30 to 2018-02-26

Certificate registration no. 51100793/5

DEKRA Certification GmbH
Stuttgart, 2015-03-30

DEKRA

We are certified according to international standards like ISO 9001:2008. In addition to that we are an active member in different industry-related organisations. Our products comply to various standards - you will benefit from normised high quality standards.

Overview of Services

Engineering

We support you from the development phase to integration and support. From the idea, through documentation and production and up to test setups, training courses and seminars you get everything from one source.

Fieldbus

We can use our extensive fieldbus expertise in various branches of the automation and automotive industry. Our focus is particularly on CAN, EtherCAT, Profibus and the protocols used in the automotive sector.

Automotive

With our tools and systems in the automotive sector we offer tstandard-based solutions in the field of diagnostics, measurement and testing. Our modular systems are future-proof and highly performant.

Automation

Whether you need IO modules, Industrial PCs, PLCs, interfaces or the matching software, with Sontheim you get standardized and customized products in highest quality based on current fieldbus technologies.

Hardware-Development

With us you get everything from one source. We develop modular hardware systems - standard or customized - its your choice.

Software-Development

Our software development provides beside diagnostic and analysis tools, protocol stacks, programming interfaces and software for control, operation and configuration of machines.

Diagnostics

MDT - the innovative and comfortable diagnostic tool chain based on ODX for the flexible creation of individual and complex diagnostic and service applications leaves no wish unfulfilled.

Product Development

As an expert in different fieldbus applications, we can provide you with custom-tailored solutions. We are passionate about all aspects of electronics including hardware, software, firmware and the design of complete systems that meet your specific needs. You benefit from our comprehensive know-how as a system provider and the perfect combination of functional hardware, suitable firmware and modular software.

Electronics Manufacturing Services (EMS)

On our two modern production lines, we manufacture electronic components and systems according to your needs and to the highest standards in quality while maintaining your schedule and optimizing for costs. We stand out for our flexibility; we are capable of producing batches from prototype to series and up to nearly 240,000 units per year.

Interfaces

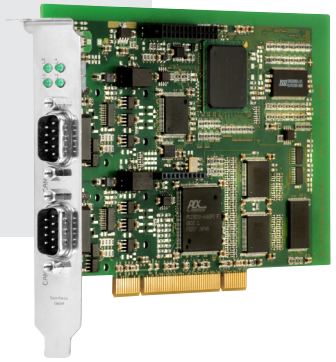
Our interfaces between CAN network and PC / laptop

Did you know...

The CANfox is the latest Sontheim CAN-interface with a CAN and a RS232-Interface. Despite its small dimensions and attractive pricing it contains a 32 Bit micro-controller and can be used with CoDeSys as a programming gateway for PLCs or the CANexplorer 4 for diagnostics.

All our interfaces use a common API (application programming interface) that we provide for free on our website. That gives you freedom to use your own software tools together with our hardware.

Power CAN PCI V2



PowerCAN-PCI V2 is a highly advanced and ultra-fast CAN-controller card for the connection of PCs with PCI-slot to the CAN-bus. It is able to handle the full control, regulation and parametrisation of small to complex CAN-networks.

Key Features

- Your embedded or desktop PC operates as a CANopen manager
- Control of other CAN-participants such as motion controllers, IO-modules etc.
- Transfer rate up to 1 MBit/sec. at 90% bus load
- Freescale Coldfire with 32 MHz frequency
- 2 galvanically isolated CAN-channels
- CAN-highspeed and lowspeed possible

Compatibility

The device is a PCI-card with 2 galvanically isolated CAN-interfaces according to ISO 11898. Being fully compatible to PCI-specification 2.2, it can be used with any PC-system that has an unoccupied PCI-slot. Both active CAN-controllers offer 15 message objects each and comply with FullCAN.

Microcontroller

There is a Freescale Coldfire micro-controller with 32 Bit integrated that is operated in 16 Bit demultiplexed mode for an optimal cooperation between micro-controller and PCI104 controllers. Several features help you save time. The integrated programmable chip-select logic selects peripheral components like RAM and flash and a bootstrap-loader enables an easy download of firmware components.

CAN-interface

2 galvanically isolated CAN-channels with a transfer rate of up to 1 MBit/sec. provide the necessary controlling power. In addition to that there are 2 active 2.0B CAN-controller implemented that allow a mixed mode with 11 Bit and 29 Bit identifiers. The CAN-interface complies with ISO 11898 standard as well as DS 301 and 401.

Error frame detection

This feature allows surveillance and monitoring of a CAN network. The PowerCAN card possesses an own logic for detecting error frames and counting them up in a specific internal memory area. That is used for finding intermittent errors like falsified messages of a CAN participant.

PowerCAN PCI V2	Technical data
Dimensions (l / w / h)	164 mm × 102 mm × 13 mm
PCB	6 layers
Power supply	5 V
Power consumption	500 mA
Temperature range	Operating: 0 °C to 60 °C
Humidity	20 % to 90 % non-condensing
Hardware	
Bus system	PCI
Micro-controller	Freescale Coldfire
Memory	8 MB RAM, 2 MB Flash
CAN-controller	2 × Full-CAN nach CiA (DIN41652)
CAN-transceiver	Philips 82C251
CAN-protocol	2.0A and 2.0B
CAN-interfaces	2 × galvanically isolated acc. to ISO 11898
CAN-connectors	2 × SubD9
PCI-controller	acc. to PCI 2.2 specification, 16k Dual-Port-RAM
LED	4 × LED (green)
Software	
CANopen-driver	Windows NT
Layer 2 driver	Windows 98, ME, NT, 2000, XP, Vista, 7 32 and 64 Bit

Ordering information

Art.-No.	Description
V930154000	PowerCAN-PCIV2

CANUSB

Key Features

Technically mature …

- Optimally suited for the use at PC or laptop
- ‚Hot Plug & Play' for a quick and comfortable start
- MT CANapi for development of own applications
- Version with error frame detection and level measurement available

… and rugged

- Rigid aluminum extruded case
- 1 or 2 galvanically isolated CAN-channels with 1 Mbit transfer rate at 90 % bus load

Fields of application

- Service
- CAN-analysing
- Industry automation
- Development
- Testing bench
- Education
- CAN-test programs in DOS

This is a top seller among the Sontheim interface family. It facilitates a quick and sturdy connection between PC or notebook and CAN bus. CANUSB is highly flexible, user-friendly and market-proven. Thousands of units are already in the field, used for monitoring of CAN networks, setting parameters of machines or vehicles etc.

Housing

The device has a fairly rugged housing built of aluminum. Its compact design and resistivity against shock make it very popular in many areas of the automation and automotive industry.

CAN-channels

There are either 1 or 2 galvanically isolated CAN-channels available which comply with ISO 11898 -2. The transfer rate ranges up to 1 Mbit at 90 % bus load.

Flexible data processing

Its USB 2.0 interface enables the CANUSB to be used at any laptop, embedded PC or desktop PC. Once you have installed the driver you will benefit from ‚HOT PLUG & PLAY' which is a connection of device to PC without restart.

Micro-controller and firmware update

The Motorola STAR12 and the Philips PDIUSBD12 guarantee a quick data processing. Both CAN 2.0A and CAN 2.0B are supported. CANUSB is suited for numerous operating systems like Windows XP, XP embedded, Vista and 7. All firmware updates can be loaded via USB.

Error frame detection

This feature allows surveillance and monitoring of a CAN network. The CANUSB possesses an own logic for detecting error frames and counting them up in a specific internal memory area. That is used for finding intermittent errors like falsified messages of a CAN participant.

Level measurement

This feature is designed for an analogue measurement of CAN levels. It is used for doing diagnostics at vehicles of all kinds or machines. Erratic level indicate for example short circuits. They are often responsible for data loss.

Programming interface

The CANapi provides all functions for programming own applications. It supports all Sontheim interfaces and several third-party devices which is why we enclose our SiECA132 MT-CANapi with 4 simultaneous handles at every interface dongle.

CANUSB — Technical data

Hardware	
Dimensions (L × W × H in mm)	100 × 57 × 32
Weight	166 g
Housing	Massive aluminum
CAN-interfaces	2 × galv. isolated acc. to ISO 11898-2
USB-interfaces	1 × USB 2.0
Maximum data transfer rate	1 Mbit / 90 % bus load
CAN-connector	1 × 7-pole plug
USB-connector	1 × standard USB plug type A
Power consumption	max. 350 mA at 5V
Power supply	Via USB
LEDs	2 × 3 3 mm LED
Cable USB	1 m standard USB
Cable CAN	optional 2m CANUSB cable
Operating temperature	0 °C to +70 °C
Humidity	20 % – 90 % non-condensing
Microcontroller CAN	Motorola Star 12, 16 Bit
Microcontroller USB	Philips PDIUSB 12
EEPROM	1024 Bytes for application data

Features	
Error frame detection	Optional
Anlogue level measurement	implemented
LEDs	2 × CAN data 2 × CAN status 1 × USB status 1 × device status

Scope of delivery	
1 × CANUSB	
1 × System-CD with driver SiECA132 MT-CANapi, hardware and software description (4 handles)	Win 98, ME, 2000, XP, Vista, 7 32 and 64 Bit

7-pole plug — Pin assignment

US	USB Status
CS1	CAN Status 1
C1	CAN 1 receive / transmit action
GS	Device status
CS2	CAN Status 2
C2	CAN 2 receive / transmit action
1	CAN2 low
2	CAN 2 high
3	–
4	CAN 1 low
5	CAN 1 high
6	–
7	CAN 1 GND

USB-interface — Pin assignment

1	VCC (VBUS)
2	– Data
3	+ Data
4	GND (Ground)

The Sontheim Modular Diagnostic Tool Chain

You can easily create your individual and professional diagnostic solution for the automation or automotive application with the help of the Sontheim interfaces and diagnostic software. Some examples of our customers' use cases are:

- CAN-data visualisation, monitoring and processing
- Parametrisation and control of whole CAN networks
- Vehicle diagnostics
- Flash processes of electronic control units (ECUs)

Ordering information

Art.-No.	Description
V930204000	CANUSB 2xCAN, error frame, level measurement
V930205000	CANUSB 2xCAN, error frame
V930206000	CANUSB 2xCAN
V930207000	CANUSB 1xCAN, error frame, level measurement
V930208000	CANUSB 1xCAN, error frame
V930209000	CANUSB 1xCAN

Equipment

Art.-No.	Description
V930220000	CANUSB-cable, 2m, 120Ohm
V930220100	CANUSB-cable,2m, (2x SubD9 male)

CANUSBlight

Key Features

Technically mature …

- Optimally suited for the use at PC or laptop
- ‚Hot Plug & Play' for a quick and comfortable start
- MT CANapi for development of own applications
- Extremely attractive price-performance ratio

… and rugged

- Rigid plastic case
- 1 galvanically isolated CAN-channels with 1 Mbit transfer rate at 90 % bus load

Fields of application

- Service
- CAN-analysing
- Industry automation
- Development
- Testing bench
- Education
- CAN-test programs in DOS

The CANUSBlight is an inexpensive interface with a smaller range of functions compared to the CANUSB or CANfox. It facilitates a quick and sturdy connection between PC or notebook and CAN bus. CANUSBlight is highly flexible, user-friendly and market-proven. Thousands of units are already in the field, used for monitoring of CAN networks, setting parameters of machines or vehicles etc.

Housing and CAN-channels

The housing is made of plastic and quite compact. There is a galvanically isolated CAN-interface integrated that complies with CiA specification. Its signals are forwarded via SubD9 plug. CANUSBlight offers CAN highspeed with up to 1 Mbit/sec as well as a version specifically used for CAN lowspeed with 125 Kbit/sec.

CANUSBlight - a start-up interface

Due to its small dimensions the CANUSBlight is a fairly flexible device for all tasks around CAN bus networks. Its USB 2.0 interface allows a deployment at any laptop, embedded PC or desktop PC. Once you have installed the driver you will benefit from ‚HOT PLUG & PLAY' which is a connection of device to PC without restart.
If you want to gather first experiences with working in a CAN network and you can dispense with error frame detection and analogue level measurement, the CANUSBlight is a very attractive PC-to-CAN interface for you.

Micro-controller and firmware update

The Motorola STAR12 and the Philips PDIUSBD12 guarantee a quick data processing. Both CAN 2.0A and CAN 2.0B are supported. CANUSB is suited for numerous operating systems like Windows XP, XP embedded, Vista and 7. All firmware updates can be loaded via USB.

CANUSBlight	Technical data
Hardware	
Dimensions (L × W × H in mm)	52 × 36 × 21
Housing	Compact plastic
CAN-interfaces	1 × galv. isolated acc. to ISO 11898-2
USB-interfaces	1 × USB 1.1 with up to 12 Mbit/sec
Maximum data transfer rate	1 Mbit / 90 % bus load
CAN-connector	1 × SubD9 acc. to CiA
USB-connector	1 × standard USB plug type A
Power consumption	max. 200 mA at 5V
Power supply	Via USB
LEDs	3 × 3 mm LED
Cable USB	1 m standard USB
Cable CAN	2m standard CAN
Operating temperature	0 °C to +70 °C
Humidity	20 % – 90 % non-condensing
Microcontroller CAN	Motorola Star 12, 16 Bit
Microcontroller USB	Philips PDIUSB 12
EEPROM	1024 Bytes for application data
Software	
CANAPI (=Windows DLL)	Windows 2000, XP, Vista, 7 32 Bit Windows 98 on request
CANexplorer 4	Analyzer for the CAN-Bus
MDT Autorensystem	Creation of diagnostic applications

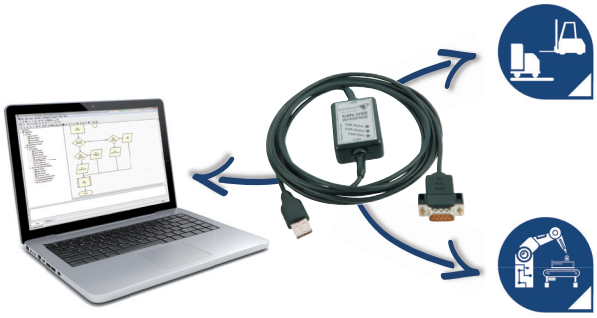
CAN-interface	Pin	Pin assignment
	2	CAN L (low)
	3	CAN Ground
	7	CAN H (high)

USB-interface	Pin	Pin assignment
	1	VCC (VBUS)
	2	– Data
	3	+ Data
	4	GND (Ground)

The Sontheim Modular Diagnostic Tool Chain

You can easily create your individual and professional diagnostic solution for the automation or automotive application with the help of the Sontheim interfaces and diagnostic software. Some examples of our customers' use cases are:

- CAN-data visualisation, monitoring and processing
- Parametrisation and control of whole CAN networks
- Vehicle diagnostics
- Flash processes of electronic control units (ECUs)



Ordering information

Art.-No.	Description
V930300000	CANUSB light 1xCAN
V930302000	CANUSB light 1xCAN, low speed

CANfox

CANfox is the latest of the Sontheim fieldbus-to-USB adapter. Besides its CAN-interface it contains a RS232 channel for a maximum of flexibility. The device can be used for monitoring of CAN networks, setting parameters of machines or vehicles etc.

Key Features

Hardware…

- 1x CAN galvanically isolated and 1x RS232
- Connection via USB 2.0
- Free configuration of baud rate, incl. 800 Kbit
- Powerful 32Bit micro-controller

… and Software

- CODESYS gateway-driver
- Multi-Thread API orf own applications
- Drivers for Windows 2000 to Windows 7 32 and 64Bit

… at an unbeatable price

- Single unit < 100,- €

Fields of application

- Service
- CAN-analysing
- Industry automation
- Development
- Testing bench
- Education
- CAN-test programs in DOS

Housing and interfaces

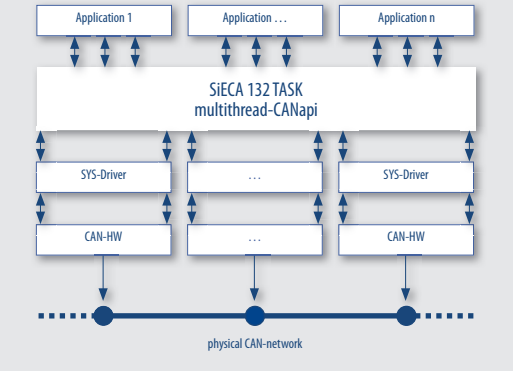
It is housed in compact plastic case and offers a CAN channel and a RS232 channel. CAN is of CiA standard SubD9 design. Its USB 2.0 interface enables the CANfox to be used at any laptop, embedded PC or desktop PC. Once you have installed the driver you will benefit from ‚HOT PLUG & PLAY' which is a connection of device to PC without restart. Consequently, CANfox offers all necessary interfaces located in a tiny case for mobile or stationary use.

More performance, less costs

It is the most powerful device of the Sontheim interface group with its 32 Bit micro-controller for data-handling. However, the CANfox is meant to be a flexible and very inexpensive tool. Thus, you can configure the baud rate via software and adapt it to your processes. A single unit is available for less than EUR 100,- so please don't hesitate to contact us for an offer.

Comprehensive software support

Of course, CANfox is supported by all Sontheim software like CANexplorer 4 for CAN-bus diagnostics or MDT for vehicle applications like diagnostics or End-of-Line processes. Additionally, with purchasing an interface you get the programming interface (API) for integrating the CANfox into your own software. There is also a CODESYS support implemented in order to use the device for PLC and motion control tasks. Use it as a programming gateway for CODESYS-based PLCs or for downloading programms directly out of a CODESYS programming environment.



CANfox	Technical data
Hardware	
Housing	Compact plastic
CAN-interfaces	2 × galv. isolated acc. to ISO 11898-2
USB-interfaces	1 × USB standard type A, 75cm cable length
Baud rates	50 Kbit to 1 Mbit/sec, free configuration
Maximum data transfer rate	1 Mbit / 90 % bus load
Power supply	Via USB
LEDs	3 × 3 mm LED
Microcontroller	32Bit NXP LPC2458
Microcontroller CAN	Motorola Star 12, 16 Bit
Microcontroller USB	Philips PDIUSB 12
Operating temperature	-20 °C to +60 °C
Storage temperature	-40 °C to +85 °C
Humidity	20 % – 90 % non-condensing
Software	
CANAPI (=Windows DLL)	Windows 2000, XP, Vista, 7 32 Bit Windows 98 on request
CANexplorer 4	Analyzer for the CAN-Bus
MDT Autorensystem	Creation of diagnostic applications

CAN-interface	Pin	Pin assignment
	2	CAN L (low)
	3	CAN Ground
	7	CAN H (high)

RS232-interface	Pin	Pin assignment
	2	TXD
	3	RXD
	5	GND

USB-interface	Pin	Pin assignment
	1	VCC (VBUS)
	2	– Data
	3	+ Data
	4	GND (Ground)

The Sontheim Modular Diagnostic Tool Chain

You can easily create your individual and professional diagnostic solution for the automation or automotive application with the help of the Sontheim interfaces and diagnostic software. Some examples of our customers' use cases are:

- CAN-data visualisation, monitoring and processing
- Parametrisation and control of whole CAN networks
- Vehicle diagnostics
- Flash processes of electronic control units (ECUs)

Ordering information	
Art.-No.	Description
V930322000	CANfox

wifiCAN

Im Überblick/ Key Features

Hardware…

- 1x CAN acc. to ISO 11898 standard
- Wireless data transmission acc. to IEEE802.11b/g/n
- Integrated micro SD card for data-logging
- Free configuration of baud rate

… and Software

- Easy CANfox mapping
- Multi-Thread API orf own applications
- Drivers for Windows 2000 to Windows 8 32 and 64Bit

Fields of application

- Service
- CAN-analyzing
- Industrial automation
- Development
- Testing bench
- Education

The wifiCAN is the latest interface of the Sontheim fieldbus-to-WLAN adapter. A powerful microcontroller and wireless data transmission makes the wifiCAN an extremely flexible and easy tool for monitoring CAN networks, logging data, setting parameters of machines or vehicles and more.

Housing and interfaces

It is housed in a compact plastic case and offers a CAN channel which is carried out in accordance to ISO 11898. Over the wireless interface, wifiCAN can be used at any laptop or desktop PC with a Wi-Fi interface and also firmware updates can be installed. An ad-hoc mode enables a direct connection between the wifiCAN and Wi-Fi port of the notebook/PC. An integration of wifiCAN to an existing Wi-Fi infrastructure is also possible.

Wireless data transmission up to 65 Mbit/s

The new Sontheim wifiCAN simplifies your data transmission thanks to Wi-Fi technology. With up to 65 Mbit/s the data will be transferred wirelessly according to IEEE802.11b/g/n standard. Consequently wifiCAN offers all important interfaces located in a tiny case for mobile or stationary use.

Data-logging and customized possibilities

Thanks to the 32bit microcontroller a fast data handling with low power consumption is possible. The power supply can be effected from 9V to 42V and be customized. You can configure the baud rate from 50Kbit to 1Mbit freely via software and adapt it to your process requirements.

The CAN connection can also be adapted to the customer‘s request (SubD9, ISO bus connector, ...). Additionally wifiCAN is equipped with a micro SD card with up to 2GB of memory that can be used for logging data.

Comprehensive software support

wifiCAN is supported by all Sontheim software like CANexplorer4 for CAN-bus diagnostics or MDT for vehicle applications like diagnostics or End-of-Line processes. Additionally, with purchasing an interface you get the programming interface (API) for integrating the wifiCAN into your own software. Thanks to the CANfox mapping, applications can be taken simply and without changes from CANfox to wifiCAN.

wifiCAN	Technical data
Hardware	
Housing	compact plastic
CAN-interface	1x SubD9 acc. to CiA, CAN ISO 11898
WLAN	65 Mbit/s, acc. to IEEE802.11b/g/n
Baud rate	50 kBit to 1 Mbit/sec, free configuration
Max. data transmission	1 Mbit / 90 % bus load
Power supply	over CAN-interface
LEDs	3 x 3 mm LED
Microcontroller	32Bit NXP micro controller LPC2458
Operating temperature	0°C to +50 °C
Storage temperature	-10°C to +60°C
Humidity	10% - 90% non condensing
Software	
CANAPI (=Windows DLL)	Windows 2000, XP, Vista, 7, 8 32 Bit and 64 Bit Windows 98 on request
CANexplorer4	Analyzer for the CAN-Bus
MDT Authoring System	Creation of vehicle diagnostic applications

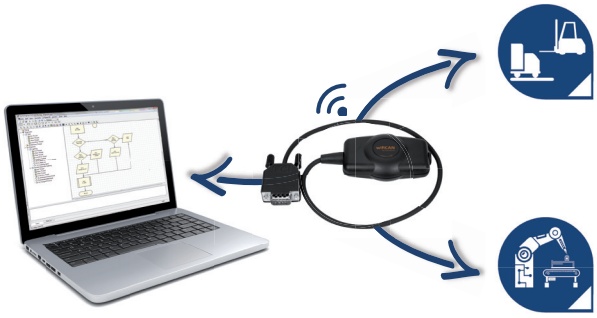
CAN-interface	Pin	Pin assignment
	2	CAN L (low)
	3	CAN Ground
	7	CAN H (high)

wifiCAN **Reset option**

The Sontheim Modular Diagnostic Tool Chain

You can easily create your individual and professional diagnostic solution for automation or automotive applications with the help of the Sontheim interfaces and diagnostic software. Some examples of our customers' use cases are:

- CAN-data visualization, monitoring and processing
- Parametration and control of whole CAN networks
- Vehicle diagnostics
- Flash processes of electronic control units (ECUs)



Ordering information

Art.-No.	Description
V930341110	wifiCAN

COMfalcon

COMfalcon is a powerful CAN interface with WLAN/LAN interfaces and various equipment options. Use it for monitoring, flashing or analyzing CAN-networks and handling layer 7-protocols like CANopen or SAE J1939. It is a very flexible and easy to use tool for the detection of CAN data and monitoring of entire networks.

Key Features

Technically mature …

- Wireless data transmission acc. to IEEE802.11g
- Protocol handling
- MT CANapi for development of own applications
- Optional with data-logging, scripting, terminating resistor measurement, and integrated SD-card

… and rugged

- Rigid aluminum extruded case
- up to 4 CAN-channels with 1 Mbit transfer rate at 90% bus load
- RS 232, RS 422, RS 485, K-Line

Possible use-cases

- Service
- CAN-analyzing
- Industrial automation
- Development
- Test station

Housing and status indicators

The device has a fairly rugged housing built of aluminum with IP65 protection. Thanks to the compact design and high shock resistance, COMfalcon can be used in various fields of the automation and automotive industries. A 14-segment display and nine LEDs always show the current status/error code of the device.

Interfaces

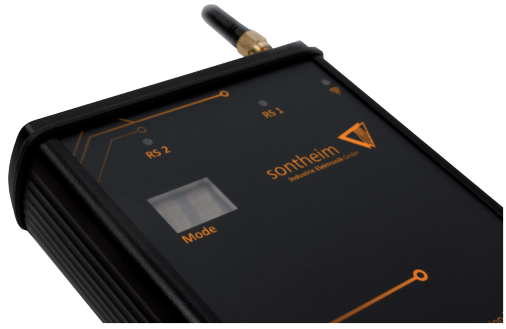
The COMfalcon has 4 independent CAN channels and is based on the CAN interface CIN with a Freescale Power PC architecture. WLAN/LAN is used to connect to a diagnostic laptop/PC. In addition to the CAN interfaces a various of other interfaces such as RS232, RS422, RS485 or K-Line are available for diagnostic purposes.

Error frame detection

This feature allows surveillance and monitoring of a CAN network. The COMfalcon possesses an own logic for detecting error frames and counting them up in a specific internal memory area. That is used for finding intermittent errors like falsified messages of a CAN participant.

ID-based level measurement - resistance measurement / current measurement

This feature allows to read the CAN level even IO-related and to measure active and passive termination resistors, for example for various diagnostics on a vehicle or a machine. This is especially important if the network may lose data caused for example by short circuit.



COMfalcon — Technical data

Hardware	
Microcontroller	Freescale Power PC
RAM	64MB
Flash	16 MB (for data-logging optional up to 128 MB)
CAN – Interface	4x CAN interfaces, according to ISO 11898 standard
Baud rate	50kBit/s to 1MBit/s
CAN – terminating resistor measurement	Measurement of the terminating resistor in the vehicle CAN – Network, until active bus
CAN Port	2x 7 pole M16 connector (similar to Sontheim CANUSB)
RS232 – Interface	SUBD-9 Plug A, no handshake signals
Multiplexed Serial Port	SUBD-9 Plug A 5 different serial interfaces, switchable by software
K-/L-Line interface	K-/L- Line (according to ISO 9141-2, ISO 14230-4) Baud rate up to 56 kBaud
RS485 – Interface	EIA/TIA-485 Compatibility Baud rate up to 10 Mbps No terminal resistor implemented
RS422 – Interface	ANSI/TIA/EIA-422 Compatibility Baud rate up to 10 Mbps No terminal resistor implemented
LAN	M12 4-pin female connector 100 Mbit LAN, D-coded
WLAN	WLAN according to IEEE 802.11g, up to 54 MBit/s
14 segment display	Boot-Information, K-Line Mode, RS-Mode, Measurement, Error Codes
LEDs	· Power LED, green · LAN Status LED, green and yellow · WLAN Status LED, green and yellow · 4x CAN Status LED, green and yellow · 2x RS Status LED, green and yellow
Power Supply	a) via vehicle battery 6..32VDC with load dump protection b) via USB V = 5V, IMAX < 500 mA (with single cable mini-B-USB connector)
Housing	Aluminum, Protection class IP65
Dimensions	110 x 150 x 35 mm
Operating temperature	-20°C ... +60°C
Storage temperature	-40°C ...+85°C

Software	
CANAPI (=Windows DLL)	Windows 2000, XP, Vista, 7 and 8, 32 Bit and 64 Bit Windows 98 on request
CANexplorer4	Analyzer for the CAN-Bus
MDT Authoring System	Creation of vehicle diagnostic applications

RS1

Pin	Pin assignment
1	VTRAC
2	GND
3	COM+
4	COM-
5	ISOK
6	ISOL
7	NC
8	RS422 RX+
9	RS422 RX-

RS2

Pin	Pin assignment
2	RXD
3	TXD
5	GND

CAN 1/2

Pin	Pin assignment
1	CAN2 low
2	CAN2 high
3	NC
4	CAN1 low
5	CAN1 high
6	Ubat
7	CAN GND

CAN 3/4

Pin	Pin assignment
1	CAN4 low
2	CAN4 high
3	NC
4	CAN3 low
5	CAN3 high
6	Ubat
7	CAN GND

LAN

Pin	Pin assignment
1	TX+
2	RX+
3	TX-
4	RX-

14 segment display — Mode/Error Code

Ordering information

Art.-No.	Description
V930232000	COMfalcon

CIN CAN-Interface & Ethernet-Bridge

Key Features

- Freescale Microcontroller
- Numerous interfaces
- Internal flash and RAM memory
- Can be used as an embedded board or within the Diag-Box for communications
- High temperature range for rough environments
- Comprehensive software support

CIN is a PCB-alone version of the Sontheim CAN adapters with numerous interfaces for communication. Its extended temperature range and a number of diagnostic functions make it a perfect embedded module for industrial signal-processing.

Interfaces

There are 4 CAN-interfaces next to 2 x single-wire CAN, 8 digital inputs and 8 digital outputs. Moreover, CIN uses ethernet and I^2C for controlling peripheral components. It is possible to have it assembled either as a piggy-back board onto another PCB or in the Diag-Box as a high-performance communication node. The ethernet channel is also used for building up a gateway function for CAN-to-Ethernet.

Error frame detection

Similar to a CANUSB, CIN is equipped with error frame detection. This feature allows surveillance and monitoring of a CAN network. It has an own logic for detecting error frames and counting them up in a specific internal memory area. That is used for finding intermittent errors like falsified messages of a CAN participant.

Level measurement

This feature is designed for an analogue measurement of CAN levels. It is used for doing diagnostics at vehicles of all kinds or machines. Erratic level indicate for example short circuits. They are often responsible for data loss.

CIN	Technical data
Microcontroller	Freescale MPC 512x with 4 CAN-interfaces
RAM	32 MByte, optional 64 and 128 MByte
Flash	16 MByte
Ethernet / PHY	10 / 100 MBit
CAN-interfaces	4 CAN-transceiver, 1. transceiver with Wake-on-CAN
	Bus termination: 120Ω, can be assembled on PCB
	Diagnostics: Error frame detection on separate FPGA for all channels
	Diagnostics: Analogue level measurement with simultaneous measuring of CAN-high and CAN-low
	CAN-channels not galvanically isolated
Digital inputs	8, power supply 3,3V
Digital outputs	8, power supply 3,3V, 10mA
Single-wire-CAN	2 interfaces
I^2C	1 interface
Power supply	+UBat (12V or 24V), +3,3V, 5V
Operating temperature	-20 to +85°C
Storage temperature	-40 to +85°C
Assembly	Customer-specific embedded board solution or Diag-Box
Software-Support	CANexplorer 4, MDT, ODX-Editor, SiECA132 MT API and others on enquiry
Additional information	CAN-to-Ethernet Bridge / Gateway functionality

Ordering information

Art.-No.	Descripition
V930230120	CIN MPC5123 error frame, level measurement

Gateways and ECUs

Overview of our Gateways & ECUs

Did you know ...

The high-performance COMhawk has numerous applications for communication and diagnostics including its use as a CAN-to-WiFi Gateway, data server, telemetry node, data logger, and diagnostic device, among others. The modular hardware and software architecture guaranties a future-proof technology base.

You are looking for a robust system operating in harsh environments? We´ve got it, COMhawk is including exposure to dust, extreme temperatures, shock, vibration, and high pressure water or steam jets, and it meets all of the requirements outlined by the Automotive EMC Directive.

COMhawk

Key Features

Technically mature …

- Powerful 32bit microcontroller
- 3 x CAN acc. to DIN ISO 11898
- 1x Ethernet, 10/100Mbit
- WLAN acc. to IEEE 802.11 b/g/n
- With data logging
- Integrated webserver

… and rugged

- Protection class IP69K, vibration resistant
- Meets all of the requirements outlined by the Automotive EMC Directive

Possible use-cases

- Diagnostics
- Real-time monitoring
- Communication interface
- Telemetry node
- Event Logger

COMhawk is a control device for communication and diagnostic tasks. In addition to the standard interfaces such as CAN and Ethernet the module also offers a wireless Wi-Fi interface. The variety of interfaces and the extremely rugged IP69K housing opens the module various fields of applications in the automotive and automation area.

Housing and interfaces

The new COMhawk is equipped with 3 CAN channels, Ethernet , Wi-Fi and optional 2 digital inputs and 1 digital output. In addition, great emphasis was placed on an extremely robust and durable design to meet the current safety standards. The control device is designed for the use outside the cabin of a vehicle and is vibration tested. A temperature range of -40°C to +85°C and the compact housing with protection class IP69K are ensuring an extensive protection.

Microcontroller and use cases

A powerful 32bit microcontroller allows even the most demanding applications and thanks to the built-in NAND flash memory of up to 16GByte amounts of data can be stored. Thus COMhawk can be used both, in the automotive as well as in the automation industry for a variety of communication and diagnostic tasks such as a communication interface, gateway, event logger or telemetry node.

Comprehensive software support

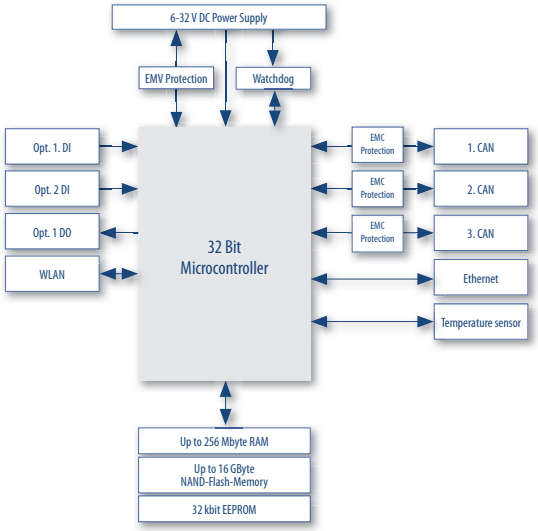
The freely programmable and real-time capable ECU system can be programmed by the user application specifically. Over a configurable data interface for example an individual configuration of the interfaces or the structure of an application could be solved expeditiously. Furthermore control loops can be mapped easily over an integrated script interpreter. Another advantage is the reusability of this type of programming, whereby future work can even be more efficient. The user profits from a complete development environment.

Integrated webserver

The integrated webserver interface allows more efficient diagnostics and maintenance practices and is a standard part of COMhawk™. Diagnostic and maintenance tasks are easily available locally and remotely in compliance with appropriate security measures (e.g. firewall). COMhawk™ is able to interface with any Wi-Fi enabled device with a browser.

COMhawk	Technical data
Processor	32bit Controller, SPC 5123 400 MHz
RAM	32MByte up to 256MByte
Memory	16MByte up to 16GByte NAND-Flash-Memory
CAN	3 x CAN acc. to DIN ISO 11898
	optional with 4. CAN interface
Ethernet	1 x Ethernet, 10/100 Mbit
WLAN	1 x IEEE 802.11 b/g/n
I/Os	optional 2 digital inputs
	optional 1 digital output
Power supply	6-32 V DC
Operating temperature	-40°C to +85°C
Storage temperature	-40°C to +85°C
Operating system	RTOS (µC/OS-II) or LINUX
Housing	IP69K
Dimensions	about 130mm x 124mm x 38mm
Weight	375g
Connector	18 pol. automotive connector

COMhawk	Pin	Pin assignment
	1A	Ubat
	1B	GND
	1C	LAN_SHLD
	2A	DIG_IN1 (opt.)
	2B	LAN_RX-
	2C	LAN_RX+
	3A	DIG_IN2 (opt.)
	3B	LAN_TX-
	3C	LAN_TX+
	1D	DIG_OUT1 (opt.)
	1E	CAN4_High (opt.)
	1F	CAN4_Low (opt.)
	2D	CAN3_Low
	2E	CAN2_Low
	2F	CAN1_Low
	3D	CAN3_High
	3E	CAN2_High
	3F	CAN1_High



Ordering information

Art.-No.	Description
V930238200	COMhawk

eSys-IDC4E1

eSys-IDC4E1 allows the connection of different CAN busses over IP networks. Therefore the high performant CAN-to-Ethernet Gateway provides one LAN connection and four galvanically isolated CAN interfaces. In addition, the module provides a variety of measurement and diagnostic functions in machine fieldbus systems.

Key Features

- Powerful 32bit microcontroller
- 1x Ethernet, 10/100Mbit
- 4x CAN acc. to DIN ISO 11898, galv. isolated
- Active resistance measurement
- Integrated Error-frame-detection
- Robust aluminum housing
- Incl. standardized SAE J2534 API

Possible use-cases

- Communication interface
- CAN-to-Ethernet Gateway
- CAN-to-CAN Bridge
- Diagnostics
- Real-time monitoring

Interfaces and integrated diagnostic functions

In addition to four galvanically isolated CAN channels eSys-IDC4E1 provides one LAN connection to transfer the data to a higher-level computer. For monitoring the CAN bus an active resistance measurement and an error-frame-detection is implemented. This feature allows surveillance and monitoring of a CAN network. eSys-IDC4E1 possesses an own logic for detecting error frames and counting them up in a specific internal memory area. Thus is used for finding intermittent errors like the falsified messages of a CAN participant.

Standardized SAE J2534 API

The Sontheim pass-thru API is supplied as a standard interface with eSys-IDC4E1. Thus, the module can be used for applications based on J2534. Further higher level protocols can be easily implemented on demand.

Software architecture

The software architecture of the CAN module consists of a host device structure in which a x86 PC-system as a hosts use the module as a device for access to the CAN bus. For communication between host and device Ethernet is used. The communication takes place via IP and a proprietary, on UDP based communication protocol.
For identification (Discover) of the CAN interfaces over LAN, the process according to ISO 13400 is used. The firmware of the CAN module is composed of a main thread, which handles the CAN communication and is also able to handle the transport layer communication protocols (e.g. J1939-21/J1939-81, ISO 15765), and a diagnostic thread for a self-and CAN-diagnostic. All non-related services to the direct communication of the CAN module, such as the configuration of the bridging or CAN-diagnostics are handled over the so-called „toolbox“ protocol. The order of the received message at the host interface is the same order as on the physical bus, regardless whether the message was sent or received. Thus, an extremely high-performant communication is guaranteed at low latency.

eSys-IDC4E1 — Technical data

Microcontroller	Freescale Power PC, 400 MHz
RAM	32MB (optional up to 128MB)
Flash	16MB (optional up to 128MB)
CAN interface	4x CAN interfaces galv. isolated, acc. to ISO 11898 standard, 2.0A and 2.0B
Baud rates	50kBit/s to 1MBit/s (incl. 800kBit/s)
CAN - resistance measurement	CAN bus resistance measurement of the machine. Measurement on active bus
CAN - diagnostic	Error-frame-detection
CAN connector	4x Sub-D-9 pole
LAN	100 Mbit LAN, RJ45 connection
LEDs	LAN status LED, green and yellow at the RJ45 connection
Power supply	24V +/- 10% / max. 1A
Housing	Aluminum, IP30
Dimensions	ca. 121 x 151 x 48 mm - without clamps
Operating temperature	0°C ... +60°C
Storage temperature	-20°C ... +70°C
Additional information	CAN-to-CAN Bridge
CE-marking	EN 61000-6-2 Electromagnetic compatibility (EMC) immunity (10V /m) EN 61000-6-4 Electromagnetic compatibility (EMC) electromagnetic interference EN 61000-4-2 Immunity to static discharge (ESD) EN 61000-4-3 Immunity to radiated electromagnetic fields EN 61000-4-4 Immunity to electrical fast transient EN 61000-4-5 Surge immunity EN 61000-4-6 Immunity to conducted disturbances, induced by radio-frequency fields

CAN-interface

Pin	Pin assignment
2	CAN low
3	CAN GND
7	CAN high

RJ45

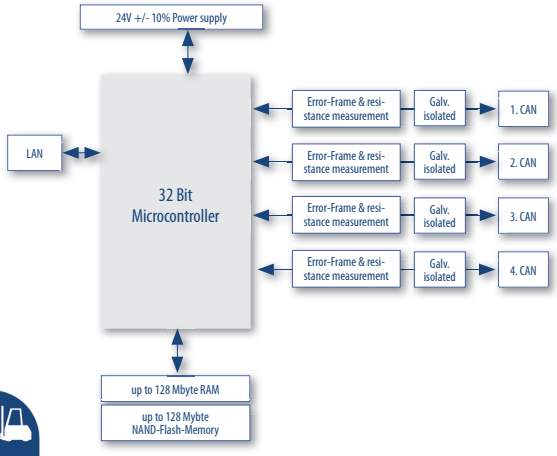
Pin	Pin assignment
1	Tx+
2	Tx-
3	Rx+
4	NC
5	NC
6	Rx-
7	NC
8	NC

DIP-Switches

CAN resistance measurement	
1	120Ω CAN1 On/Off
2	120Ω CAN2 On/Off
3	120Ω CAN3 On/Off
4	120Ω CAN4 On/Off

Power supply

1	24V
2	0V
3	PE



Ordering information

Art.-No.	Description
V930230300	eSys-IDC4E1

Programming interfaces

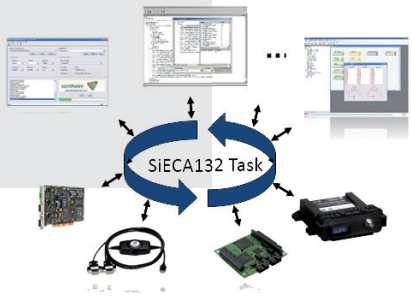
This section is about the SiECA 132 MT-CANapi with up to 512 simultaneous handles

Did you know ...

Our standard MT-API is available for free on our website. The powerful MT-API supports all internal and external CAN interface and allows you to easily use your own software tools with our hardware.

Overall, 512 parallel handles are possible with our API.

SiECA 132
MT-CANapi



Key Features

- One API for all internal and external interfaces
- Simultaneous access of different applications and interfaces onto the API
- Depending on type of PI up to 512 parallel handles
- Comes with a DLL or LIB for integrating own applications into a programming environment

All Sontheim CAN-interfaces are fitted with our MT-CANapi in order to provide a programming interface for you that enables an integration of your software into our hardware.

Interface-support

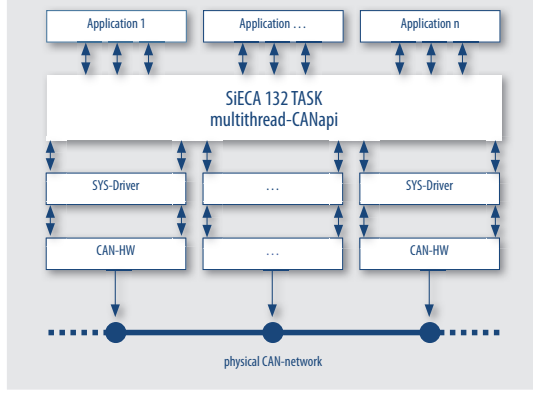
The powerful SiECA132 multithread CANapi supports all internal and external CAN-Interfaces, like our CANfox, CANUSB, PowerCAN- cards, and more. We can also state some third-party interfaces on enquiry.

Multitasking

MT-API handles a simultaneous access of different applications and interfaces quite easily. This way, you can have a trace of the CAN-bus next to other CAN-processes on a parallel basis. Overall, 512 parallel handles are possible. It contains a buffer for 1.200 CAN messages for every handle (600 receive, 600 transmit).

Creating an application

Our MT-API comes with a DLL or LIB for integration into an own development system for creating individual applications. It offers all prototypes of functions to the programmer. Every interface contains a free-of-charge API with 4 simultaneous handles.



SiECA 132	Technical data
Handles	Simultaneous access of up to 512 handles to driver
Versions	– Restricted (max. 4 handles – free of charge) – Professional (max. 65 handles) – Enterprise (max. 512 handles)
Driver-function	On layer 2 of OSI layer model
Support	for CANAs, CANUSB, CANfox, CANUSBlight, PowerCAN-PCI V1 and V2, PowerCAN-CPCI, PowerCAN-PC104+ and PowerCAN-PCI104 V2
Drivers	vWindows 98, 2000 Professional, XP, Vista, 7 32 and 64Bit

Ordering information

Art.-No.	Description
V940171000	SiECA132 MT-CANapi RESTRICTED
V940172000	MT-CANapi SiECA132 Professional
V940173000	MT-CANapi SiECA132 Enterprise

Legal information

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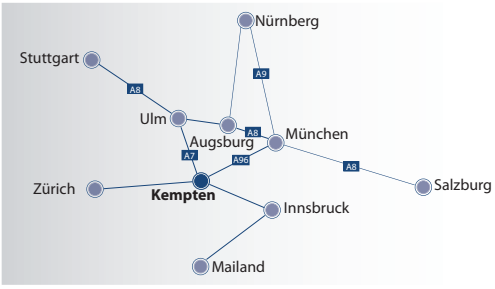

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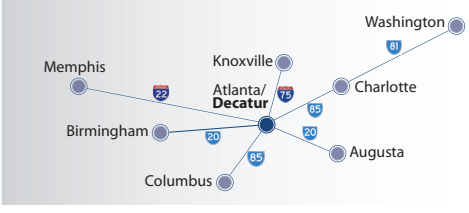

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Sontheim Overview and Portfolio:

We are looking forward to your enquiry. For a personal advice and detailled information please refer to our specialists:

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