Sontheim

# eSys-IDC4E1

## High-performance CAN-to-Ethernet Gateway


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# eSys-IDC4E1

**eSys-IDC4E1 enables the connection of different CAN buses via IP networks. The high-performance CAN-to-Ethernet gateway provides a LAN connection and four galvanically isolated CAN interfaces. In addition, the module provides various measurement and diagnostic functions in machine fieldbus systems.**

## Key Features

- **Powerful 32-bit CPU**
- **1× Ethernet, 10/100 Mbit/s**
- **4× CAN acc. to ISO 11898, galv. isolated**
- **Active resistance measurement**
- **Integrated error frame detection**
- **Robust aluminium housing**
- **Including standardized SAE J2534 interface**

## CAN-to-Ethernet gateway with integrated diagnostic functions

In addition to four galvanically isolated CAN channels eSys-IDC4E1 provides an Ethernet connection for the transmission of data to a higher-level computer. For CAN bus monitoring 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.

# Technical Data

| | |
|---|---|
| CPU | Freescale PowerPC, 400 MHz |
| RAM | 32 MB (optionally up to 128 MB) |
| Memory | 16 MB (optionally up to 128 MB) |
| CAN interface | 4× CAN interface galv. isolated, according to ISO 11898 Standard, 2.0 A und 2.0 B |
| Baud rates | 50 Kbit/s up to 1 Mbit/s (incl. 800 Kbit/s) |
| CAN termination resistance measurement | Measurement of the terminating resistor of the CAN bus of the machine; measurement takes place with active bus |
| CAN diagnostic | Error frame detection |
| CAN connections | 4× D-Sub9 |
| LAN | 100 Mbit LAN, RJ45 connection |
| LEDs | LAN Status LED, green and yellow at RJ45 connection |
| Others | Can also be used as CAN-to-CAN bridge |
| CE-Sign | EN 61000-6-2 electromagnetic compatibility (EMC)<br>Interference immunity (10V/m)<br>EN 61000-6-4 electromagnetic compatibility (EMC)<br>Interference emission<br>EN 61000-4-2 immunity to static discharge (ESD)<br>EN 61000-4-3 immunity to radio-frequency electromagnetic fields<br>EN 61000-4-4 immunity against fast transient electrical disturbances<br>EN 61000-4-5 interference immunity against surge voltages<br>EN 61000-4-6 immunity to conducted disturbances induced by high-frequency fields |
| Dimensions (l×w×h) | approx. 121 mm × 151 mm × 48 mm – without connection |
| Housing | Aluminium housing, Protection class IP30 |
| Storage temperature | –20 °C up to +70 °C |
| Operating temperature | 0 °C up to +60 °C |
| Supply | 24 V ±10 % / max. 1 A |

# Pin assignment

### CAN D-Sub9


| | |
|---|---|
| 2 | CAN low |
| 3 | CAN GND |
| 7 | CAN high |

### LAN-RJ45

| | |
|---|---|
| 1 | Tx+ |
| 2 | Tx– |
| 3 | Rx+ |
| 4 | – |
| 5 | – |
| 6 | Tx– |
| 7 | – |
| 8 | – |

### CAN resistance measurement


| | |
|---|---|
| 1 | 120Ω CAN1 On/Off |
| 2 | 120Ω CAN2 On/Off |
| 3 | 120Ω CAN3 On/Off |
| 4 | 120Ω CAN4 On/Off |

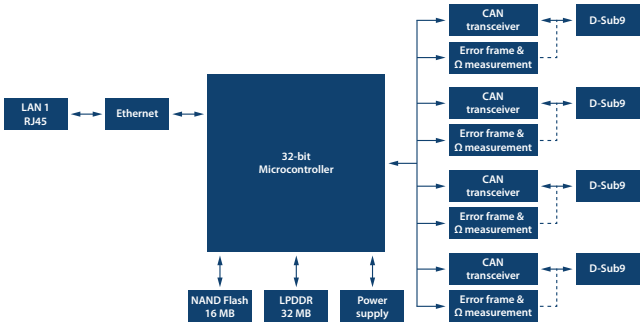
### Phoenix connection

| | |
|---|---|
| 1 | 24 V |
| 2 | 0 V |
| 3 | PE |

# 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 „tool-box“ 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.

# Block diagram




# Order information

| | |
|---|---|
| V930230300 | eSys-IDC4E1 |


**Mobile Automation**

**Industrial Automation**

**Diagnostics**

**Connectivity**

## We are looking forward to your enquiry!

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