

# CANextender

## The Programmable Input/Output Device for the CAN Bus

The CANextender is a programmable input/output device for CAN systems that can be used where analog and digital measurements must be acquired and transmitted to the CAN bus via CAN messages. For this purpose, the CANextender reads in digital and analog signals and evaluates them according to a configuration program created by the user. The configuration program thus specifies via which CAN messages and how often the measurement values are transmitted on the CAN bus.

### Features and Advantages

Features of the CANextender hardware:

I/O interfaces via DB-37 male connectors:

- > 8 voltage inputs:
  - 16 V..+16 V, 12 bit resolution, increments of 8 mV, precision  $\pm 0.1\%$
- > 8 digital switch outputs:
  - 36 V/0.5 A (low-side)
- > 8 digital inputs:
  - 0 V..36 V (common connections with the digital outputs)

#### Only CANextender AT:

- > 2 thermocouple inputs:
  - Type K (-200 °C..+1220 °C,  $\pm 3\%$  °C)

#### Only CANextender AA:

- > 4 voltage outputs:
  - 0 V..5 V, 12 bit resolution,  $\pm 0.1\%$
- > CAN interface:
  - high-speed (82C251) or low-speed (TJA 1054)

- > Automotive-power supply voltage range:
  - 8.5 V..18 V
- > Large operating temperature range:
  - 40 °C..+70 °C
- > Low power consumption: type 3 W
- > Robust aluminum housing: 185 × 105 × 35 mm

### Functions

Using the configuration software included in the delivery, the CANextender can be configured and controlled via a RS-232 PC serial interface.

Various system objects such as variables, timeouts, counters, flags, timers, message rates, and time integrals can be specified.

The CANextender can operate in two different operating modes. The current operating mode is determined by whether or not the serial interface cable is plugged in when the device is switched on. The received operating state is displayed on the device's LEDs directly after switching it on.

#### Standalone Mode:

Switching on the CANextender without a plugged-in interface cable activates the standalone mode. In this operating mode, the device operates according to the configuration loaded and defined, using the configuration program it executes – depending on the definitions made there – the following actions:



- > All CAN messages sent by other bus participants are received.
- > Message contents are evaluated, dependent variables and message types determined.
- > The signals are read into the digital and analog inputs and evaluated.
- > The digital and analog outputs as well as the LEDs are controlled.
- > CAN messages can be sent.

In this mode, the serial interface does not work.

**PC Mode:**

Switching on the CANextender with a plugged-in interface cable will activate the PC mode. In this mode the device communicates with a PC via the serial interface. In PC mode, it is possible to reconfigure the device with the aid of the configuration software.

**Application Areas**

With the CANextender, the user has a tool that can be adapted quickly to requirement changes with the aid of the configuration language and can therefore be used during the development process.

A user can, for example, switch on and off the transmission of analog measurement values on the CAN bus via the digital inputs. Also depending on the measurement parameters themselves, the transmission can be controlled. The CANextender can be configured so that upon achieving a critical measurement value, more frequent transmission of measurement values to the CAN bus

occurs in order to ensure more detailed monitoring and observation.

The CANextender can be used anywhere the conversion of digital and analog signals into CAN bus data and vice versa is required (e.g. vehicle test bench).

**Included with Delivery**

- > CANextender hardware
- > Configuration software

**CANextender Options**

CANextender Option	AA-H	AA-L	AT-H	AT-L
Analog inputs	8	8	8	8
Analog outputs	4	4	-	-
Digital inputs	8	8	8	8
Digital outputs	8	8	8	8
LEDs	8	8	8	8
CAN high-speed 82C251	1	-	1	-
CAN low-speed TJA1054	-	1	-	1
Thermo inputs	-	-	2	2