EmSA CANgineBerry

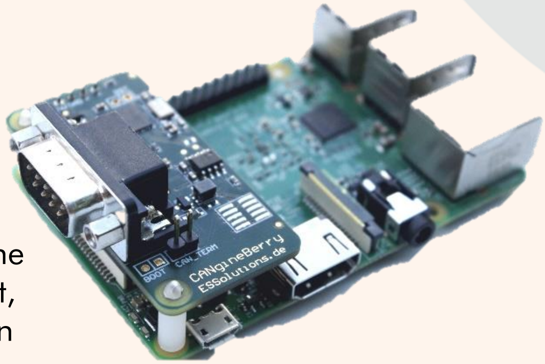
Active CANcrypt and CANopen module for Raspberry Pi and other embedded computing platforms

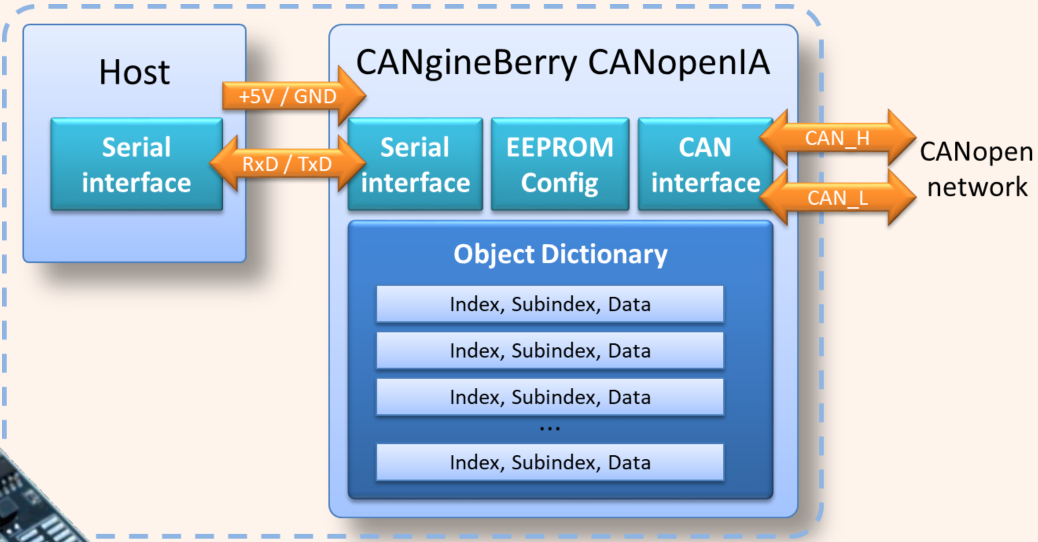
The CANgineBerry CANopen is an active CAN co-processor module that uses a regular UART communication channel towards the host system. With its independent 32-bit microcontroller, the CANgineBerry can easily execute CAN protocols with tough timing demands such as CANcrypt or CANopen with response times of under 10 ms.

Depending on the configuration, the CAN communication can be up and running within 50 ms after power-on, even if the host system takes significantly longer to boot.

Available firmware options at launch include a generic minimal CANopen Manager based on the CANopenIA implementation and a secure CANcrypt version of the popular Lawicel protocol (SLCAN).

The connection to the host system uses only four pins: Two for power (5V) and two for the UART. The four-pin header row directly matches the Raspberry Pi pin layout, but also other common connectors, such as the popular PL2303 USB-to-UART converter modules.





Host

Serial interface

+5V / GND

RxD / TxD

CANgineBerry CANopenIA

Serial interface

EEPROM Config

CAN interface

CAN_H

CAN_L

CANopen network

Object Dictionary

Index, Subindex, Data

Index, Subindex, Data

Index, Subindex, Data

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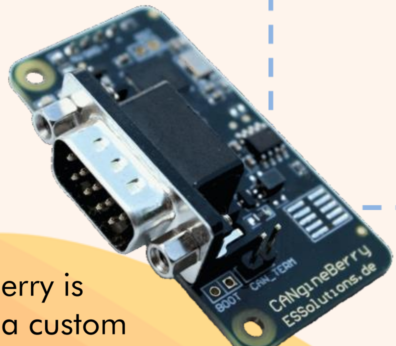
Index, Subindex, Data



Technical data

- The CANgineBerry is equipped with a custom bootloader allowing the installation of one of the firmware packages provided by Embedded Systems Academy. Check our web page for available firmware packages.
- Two LEDs (green and red) indicate the network connection status.
- EEPROM to store configuration data.
- CAN termination configuration by jumper.
- Based on a Cortex-M0 microcontroller.

The serial protocol between host and CANopenIA is the CANopen remote access protocol by Embedded Systems Academy. It supports reporting events (new data arrived on CANopen side) as well as reading and writing data of the local Object Dictionary.

The CANopen Manager performs automatic network scans, simplifying application code as it can directly access the data scanned.

CANopen Manager implementations also support read and write accesses to Object Dictionary entries of any node connected to the CANopen network.

www.cangineberry.com