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SAE J2716 USB Interface

The SENT-USB is a two-channel SAE J2716 (Single Edge Nibble Transmission - SENT) to USB interface that easily connects a SENT bus to any computer with a USB port. The converter is powered from USB and features two bi-directional SENT channels and a USB virtual COM port. A PC application for SENT communication analysis and simulation is available free-of-charge, and an open communication protocol over the virtual serial port enables the user to integrate the interface into an existing system.



FEATURES

- Two SAE J2716 (SENT) channels
- Each channel configurable as TX/RX
- USB Interface (Virtual COM port)
- USB-powered
- Configurable SENT channel parameters
- Supports Fast, Short Serial, and Enhanced Serial messages
- On-board non-volatile memory

- Intelligent message filtration
- CRC fault injection possibility
- Free PC application for configuration, reception, transmission and logging
- Communication protocol for integration into existing systems
- Device's firmware upgradable over USB
- Table or DIN-rail mount
- Hardware and firmware customization on request







Each SENT channel can be configured independently to suit all use cases: 2 RX channels / 1 RX and 1 TX channel / 2 TX channels. Channel parameters (direction, tick time, nibble count, filtration) are configurable and the configuration can be stored in the device's non-volatile memory. Fast, Short Serial, and Enhanced Serial message formats are supported. An intelligent filtration of incoming SENT frames has been introduced so that serial communication does not get overloaded.

A free-of-charge PC application for configuring the device and for monitoring, logging and simulation of SENT communication is available. The open communication protocol over the USB virtual COM port (VCP) allows to easily integrate the device into an existing system, such as test benches and HiL rigs. The protocol enables the user to configure the device's parameters as well as transmit and receive SENT Fast and Slow messages. A CRC fault injection into both Fast and Slow messages is also possible.

| SENT | | | | |
|-----------------------|--|--|--|--|
| Channels | 2 bi-directional SENT channel, each channel configurable as RX or TX | | | |
| Specification | SAE J2716 (2016), Pause Pulse support | | | |
| Tick time | 0.5 - 90 us | | | |
| Data nibbles | 1-6 | | | |
| Message format | Fast, Short Serial, Enhanced Serial | | | |
| Fault injection | CRC fault can be injected into transmitted Fast and Slow messages | | | |
| RX message filtration | No filtration, On change, Skip frames | | | |

GENERAL

| Configuration | Non-volatile memory for storing configuration of SENT channels and communication parameters |
|-----------------|--|
| PC application | Free Windows application for device configuration, reception and transmission of SENT Fast/Slow frames |
| Firmware | Upgradable from PC |
| Microcontroller | 16-bit DSP |

ELECTRICAL AND MECHANICAL

| Power input | USB-powered, no external power needed | | | | | | |
|--------------------------|---|--|--|--|--|--|--|
| Auxiliary power input | ower USB consumption: 9 - 30 V DC input with polarity protection | | | | | | |
| Power output | output for sensors (limited to 200 mA) | | | | | | |
| Consumption | 2 5 V (5V output is not considered) | | | | | | |
| LEDs | tus indicator, 1 Power | | | | | | |
| Button | tile switch (reset factory defaults) | | | | | | |
| Connectors | u-USB, 8-pin terminal block (3.5 mm pitch) | | | | | | |
| Dimensions (L x W x H) | 3 x 54 x 30 mm | | | | | | |
| Weight | 80 g | | | | | | |
| Operating temperature | 0 to 70 °C | | | | | | |
| Protection | IP20 | | | | | | |
| Placement | Table (adhesive pads included), DIN-rail mount (clip sold separately) | | | | | | |



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COMMUNICATION INTERFACE

| USB | FTDI FT232RL (USB 2.0) | | | | |
|---|---|--|--|--|--|
| Serial communication Virtual COM port | | | | | |
| Baud rate | Configurable: 115 200 / 230 400 / 460 800 / 921 600 | | | | |
| Communication protocol Binary protocol for easy integration | | | | | |

Connector 1 – SENT and Power

| PIN | NAME | |
|-----|--------------|-----|
| 1 | SENT1 RX | 1 8 |
| 2 | SENT1 TX | |
| З | SENT2 RX | |
| 4 | SENT2 TX | |
| 5 | GND | |
| 6 | 5V output | |
| 7 | GND | |
| 8 | Vin (optiona | al) |

Connector 2 – USB and Power



The interface is USB-powered, Vin can be used to lower the power drawn from USB.

Micro-USB connector uses a standard pinout.

Ordering Information

| Product Number | Description |
|----------------|---------------------------------|
| SENT-USB | SAE J2716 USB Interface |
| SENT-DIN-CLIP | Clip for mounting on a DIN rail |
| SENT-NET-SDK | .NET SDK for device integration |



| · W | me | | | | | | | | | | |
|-------------------------|----------------------------|----------------|---------------------------------------|-----------------|--|---------|---|---|---|--|--|
| rface: : :l Rate: | CAN USBcan II # 500K | Connect Device | td ID x 123 x 321 Disconnect | Format Dec | FW Version: 1.2 S/N: FFFFFFF Connected D | evice S | Stop SENT Channel 1 Stop SENT Channel 2 Stop SENT Channel 2 Channels | Load Read from Default EEPRON Dev | m Write to Load Save to EEPRIOM from File File rice Configuration | | |
| ta Trace | Slow Data | Trace SENT Con | figuration Analogue | Configuration T | ransmit | | | | | | |
| llear | Save to file | | | | | | | | | | |
| Timestam | ıp | Direction | Channel | Туре | Config bit | ID | Data | CRC Received | CRC Calculated | | |
| 10:40:21.2 | 200 | Rx | | I ShortSerial | | 10 | 5 | 6 | 6 | | |
| 10:41:37.6 | 500 | Rx | | I ShortSerial | | 10 | 5 | 6 | 6 | | |
| 10:42:53.8 | 300 | Rx | | I ShortSerial | | 10 | 5 | 6 | 6 | | |
| 10:44:10.2 | 200 | Rx | | I ShortSerial | | 10 | 5 | 6 | 6 | | |
| 10:45:26.5 | 500 | Rx | | I ShortSerial | | 10 | 5 | 6 | 6 | | |
| 10:46:42.8 | 300 | Rx | | I ShortSerial | | 10 | 5 | 6 | 6 | | |
| 10:47:59.1 | 100 | Rx | | I ShortSerial | | 10 | 5 | 6 | 6 | | |
| 10:49:15.5 | 500 | Rx | | I ShortSerial | | 10 | 5 | 6 | 6 | | |
| 10:50:31.8 | 300 | Rx | | ShortSerial | | 10 | 5 | 6 | 6 | | |
| 10:51:48.2 | 200 | Rx | | I ShortSerial | | 10 | 5 | 6 | 6 | | |
| 10:53:04.4 | 400 | Rx | | I ShortSerial | | 10 | 5 | 6 | 6 | | |
| 10:54:20.7 | 700 | Rx | | I ShortSerial | | 10 | 5 | 6 | 6 | | |
| 10:55:37.1 | 100 | Rx | | I ShortSerial | | 10 | 5 | 6 | 6 | | |
| 10:56:53.4 | 400 | Rx | | ShortSerial | | 10 | 5 | 6 | 6 | | |
| 10:58:09.7 | 700 | Rx | | I ShortSerial | | 10 | 5 | 6 | 6 | | |
| 10:59:26.0 | 000 | Rx | | 1 ShortSerial | | 10 | 5 | 6 | 6 | | |
| 11:00:42.3 | 300 | Rx | | I ShortSerial | | 10 | 5 | 6 | 6 | | |
| 11:01:58.7 | 700 | Rx | | I ShortSerial | | 10 | 5 | 6 | 6 | | |
| 11:03:15.0 | 000 | Rx | | I ShortSerial | | 10 | 5 | 6 | 6 | | |
| 11:04:31.3 | 300 | Rx | | I ShortSerial | | 10 | 5 | 6 | 6 | | |
| 11:05:47.6 | 500 | Rx | | 1 ShortSerial | | 10 | 5 | 6 | 6 | | |
| 11:07:04.0 | 000 | Rx | | I ShortSerial | | 10 | 5 | 6 | 6 | | |
| 11:08:20.3 | 300 | Rx | | I ShortSerial | | 10 | 5 | 6 | 6 | | |
| 11:09:36.6 | 500 | Rx | | I ShortSerial | | 10 | 5 | 6 | 6 | | |
| 11:10:52.9 | 900 | Rx | | ShortSerial | | 10 | 5 | 6 | 6 | | |