

SAE J2716 (SENT) to RS-232/CAN Gateway

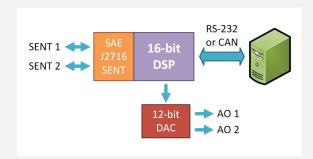
A two-channel SAE J2716 (SENT) to RS-232/CAN bus gateway that features two bi-directional SENT channels and either a RS-232 (SENT-RS232) or CAN bus (SENT-CAN) interface. Both variants also offer two analogue outputs that can directly convert inbound SENT data into an analogue voltage. The gateway comes with a free-of-charge PC application for SENT communication analysis and simulation. An open communication protocol over RS-232/CAN enables the user to integrate the interface into an existing system.





FEATURES

- Two SAE J2716 (SENT) channels
- Each channel configurable as TX/RX
- Gateway to RS-232 or CAN bus
- Configurable SENT channel parameters
- Supports Fast, Short Serial, and Enhanced Serial messages
- Two 12-bit analogue outputs mappable on incoming SENT data
- Free PC application for configuration, reception, transmission and logging
- Open communication protocol for integration
- Supports SPC mode
- On-board non-volatile memory
- · Intelligent message filtration
- CRC fault injection possibility
- Device's firmware upgradable from PC
- Table or DIN-rail mount
- Hardware and firmware customization on request



The user can configure channel parameters (direction, tick time, nibble count, filtration) and store the configuration into the device's non-volatile memory. Fast, Short Serial, and Enhanced Serial message formats are supported. Each SENT channel can be configured independently to suit all use cases: 2 RX channels / 1 RX and 1 TX channel / 2 TX channels.

An intelligent filtration of incoming SENT frames has been introduced so that RS-232 or CAN communication does not get overloaded. The CAN variant offers configurable CAN Identifiers for both TX and RX which allows multiple devices to be used simultaneously on the same CAN bus. The device's firmware is upgradable from PC.



The two 12-bit analogue output channels offer the possibility to directly convert SENT data into an analogue voltage. Each DAC can be mapped on any RX SENT channel, and conversion parameters are configurable by the user.

A PC application for configuring the device and for monitoring, logging and simulation of SENT communication is available free-of-charge. The device offers an open communication protocol over RS-232/CAN so that the user can 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.

TECHNICAL SPECIFICATION

SENT

| Channels | 2x bi-directional SENT channel, each channel configurable as RX or TX | |
|-----------------------|---|--|
| Specification | SAE J2716 (2016), Pause Pulse support, SPC mode 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 | |

ANALOGUE OUTPUTS

| Channels | 2x 12-bit DAC | |
|-------------------------|--|--|
| Voltage range | 0 - 4.095 V (internal precise reference) | |
| Mapping | Off, SENT1, SENT2 | |
| Configurable parameters | Start bit, bit length, multiplier, offset, min/max voltage | |

GENERAL

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

COMMUNICATION INTERFACE

| Protocol | Binary protocol for easy integration | |
|------------|--|--|
| SENT-RS232 | RS-232: 115200/234400, 8N1 | |
| SENT-CAN | CAN bus with configurable parameters: Baud Rate, Sample Point, RX/TX CAN Identifiers | |
| | Note: This allows multiple SENT-CAN devices on the same CAN bus. | |

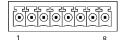


| ELECTRICAL AND MECHANICAL | | |
|------------------------------------|--|--|
| Power | 9 - 30 V DC (polarity protection), 5 V DC output for sensors (limited to 200 mA) | |
| Consumption | 50mA @ 12 V (5V output is not considered) | |
| LEDs | 3x Status indicator, 1x Power | |
| Button | Tactile switch (reset factory defaults) | |
| Connectors | DSUB9-F, 8-pin terminal block (3.5 mm pitch) | |
| Dimensions $(L \times W \times H)$ | 108 x 54 x 30 mm | |
| Weight | 80 g | |
| Operating Temperature | -20 to 60 °C | |
| Protection | IP40 | |
| Placement | Table (adhesive pads included), DIN-rail mount (clip sold separately) | |

PIN ASSIGNMENT

Connector 1 – SENT and power

| PIN | NAME |
|-----|-----------|
| 1 | SENT1 RX |
| 2 | SENT1 TX |
| 3 | SENT2 RX |
| 4 | SENT2 TX |
| 5 | GND |
| 6 | 5V output |
| 7 | GND |
| 8 | Vin1 |



Terminal Block Front view

Connector 2 – Communication and analogue

| PIN | SENT-RS232 | SENT-CAN |
|-----|--------------|----------|
| 1 | | |
| 2 | TxD (output) | CAN_L |
| 3 | RxD (input) | GND |
| 4 | | |
| 5 | GND | GND |
| 6 | A01 | A01 |
| 7 | | CAN_H |
| 8 | A02 | A02 |
| 9 | | Vin2 |

5 1

D SUB 9 Female Front view Note: SENT-CAN can also be powered over this connector (pins 9+3)

ORDERING INFORMATION

| SENT Gateway | | |
|-------------------|---------------------------------|--|
| PRODUCT NUMBER | DESCRIPTION | |
| SENT-RS232 | RS-232 variant | |
| SENT-CAN | CAN bus variant | |
| SENT-DIN-CLIP | Clip for mounting on a DIN rail | |
| SENT-NET-SDK | .NET SDK for device integration | |
| | | |

