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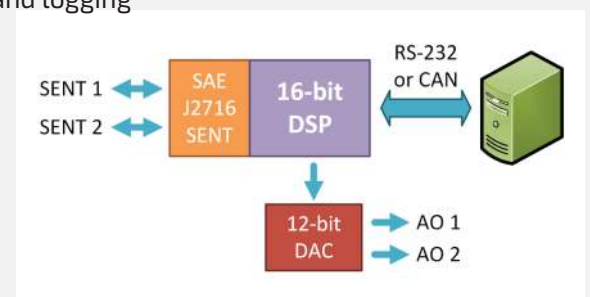
The user can configure channel parameters (direction, tick time, nibble count, filtration) and store the configuration into the device's non-volatile memory. Fast, Short Serial, and Enhanced Serial message formats are supported. Each SENT channel can be configured independently to suit all use cases: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

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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	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

ANALOGUE OUTPUTS

Channels	2 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

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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.

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ELECTRICAL AND MECHANICAL

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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	3 Status indicator, 1x Power
Button	Tactile switch (reset factory defaults)
Connectors	DSUB9-F, 8-pin terminal block (3.5 mm pitch)
Dimensions (L x W x 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
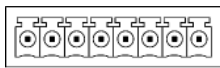
Terminal Block
Front view

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	AO1	AO1
7		CAN_H
8	AO2	AO2
9		Vin2
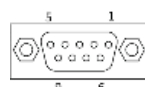
D SUB 9 Female
Front view
Note: SENT-CAN can also be powered over this connector (pins 9+3)

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