



texense
racing series by **TEXYS**

A-CAN-DG

Dongle
Analog To Can Converter
8 Analog + 2 Digital Inputs
SN: _____ Software version: _____

Texys sensors are designed for data recording. If the user wants to include this sensor in a close loop system or active control, he must assume all responsibility.

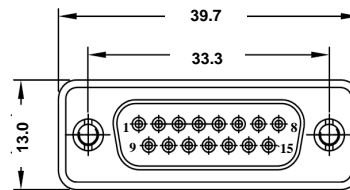
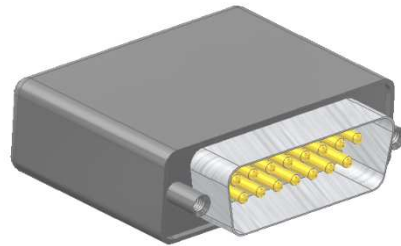
Analog Inputs	Range	+/-10	Volts
	Resolution	0.076	mV/bit
Wheel Speed	Range	0 to 500	Kmh
		0 to 500	Mph
	Tops	1 to 200	Tops/rev
	Circumference	300 to 3000	m/rev
Resolution		0.01	Kmh/bit
		0.01	Mph/bit
Engine Revs	Range	0 to 50000	Rpm
	Tops	1 to 200	Tops/rev
	Resolution	1	Rpm/bit
Sampling frequency		200	Hz
CAN bus2.0B		120Ω, installed	
Output Data		16 bits per channel	
Parameters		Identifiers, Baud rate, Frequency Digital Inputs Datas	
Baud rate		125k to 1Mbps	
Frequency		1Hz to 200Hz, on request	
Supply Voltage		6 to 16	V
Supply Current		25	mA
Dimensions		40x36x13	mm
Material		Plastic	
Weight		30	g
Protection		IP64	
Vibration test		20Gpp 5'	
Shock		500	G
Operating Temp		-20 to +80	°C
Storage Temp		-40 to +80	°C

Standard setup for Ana-CAN dongle

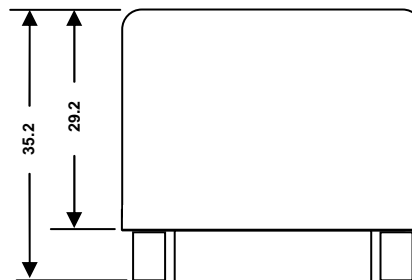
Identifiers	Tx1: 0x03F0 Tx2: 0x03F4 Tx3: 0x03F8	
Baud rate	1M	bps
Frequency	10	Hz

Connector : SubD Male 15 pts

Function / Colour	Description	Pin
Analog Inputs	Channel 1	1
	Channel 2	2
	Channel 3	3
	Channel 4	4
	Channel 5	5
	Channel 6	6
	Channel 7	7
	Channel 8	8
Supply	Supply (5 to 16 V)	9
	0V (GND)	10
	Shield	11
CAN	CAN HIGH	12
	CAN LOW	13
Digital Inputs	Engine Speed	14
	Wheel Speed	15



Front view



AXILANE
Instruments

10 rue des Acacias

91620 Nozay

tél : 09.50.60.40.20

fax : 09.55.60.40.20

Data output

ID	Byte 0	Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7
#1 0x3F0	ANA 1		ANA 2		ANA 3		ANA 4	
#2 0x3F4	ANA 5		ANA 6		ANA 7		ANA 8	
#3 0x3F8	Wheel speed		Engine Revs		-		-	

Parameters table

CAN parameters:

N°	Parameter	Raw values	values	Comments	
0x00	Baudrate	0x00	1000 Kbps	default	
		0x01	500 Kbps		
		0x02	250 Kbps		
		0x03	125 Kbps		
0x01	Emission frequency	0x00	Rx frame trig	On request - 10Hz max.	
		0x01	1 Hz		
		0x02	5 Hz		
		0x03	10 Hz	default	
		0x04	50 Hz		
		0x05	100 Hz		
		0x06	200 Hz		
0x02	Rx frame ID	0 to 0x07	0 to 0x07	MSB of triggering frame ID	Default 0x07F0
0x03		0 to 0xF0	0 to 0xF0	LSB of triggering frame ID	
0x04	Tx1 frame ID	0 to 0x07	0 to 0x07	MSB of data frame 1 ID	Default 0x03F0
0x05		0 to 0xF0	0 to 0xF0	LSB of data frame 1 ID	
0x06	Tx2 frame ID	0 to 0x07	0 to 0x07	MSB of data frame 2 ID	Default 0x03F4
0x07		0 to 0xF0	0 to 0xF0	LSB of data frame 2 ID	
0x08	Tx3 frame ID	0 to 0x07	0 to 0x07	MSB of data frame 3 ID	Default 0x03F8
0x09		0 to 0xF0	0 to 0xF0	LSB of data frame 3 ID	

Sensor parameters:

0x0A	Speed Unit	0	0.01 mph/bit	default	
		1	0.01 kmh/bit		
0x0B	Wheel circumference	300 to 5000	mm	MSB	Default: 2000
0x0C				LSB	
0x0D	Wheel tops / rev	1 to 200			Default: 1
0x0E	Engine tops / rev	1 to 200			

Protocol

Sensor setup is done by exchanging CAN frames with external tool. External tool is the protocol master and sends commands to sensors that execute requests and provide acknowledgements.

Each sensor has a unique ID used for sensor selection. Then, a specific sensor can be addressed even if there are several sensors plugged on CAN bus.

Entering in setup mode is secured by random key exchange between external tool and sensors.

CAN command

N°	Parameter	Description
0x10	ID request	To detect the connected sensors on the bus
0x20	Setup mode request	To select one sensor to modify
0x30	Read parameter command	To read a parameter
0x40	Write parameter command	To write a parameter
0x50	Save&Reset command	To save and apply all parameters

Protocol flow

- First of all, tool sends an "ID request" command (0x10) including a random key (1 byte).
- Each sensor on line responds by providing Unique ID + random key received from tool + a sensor specific random key (1 byte). At this point, sensors stay in normal mode and then continue to provide data output.
- Tool sends "setup mode" command (0x20) by providing Unique ID and sensor random key of sensor to be programmed.
- Selected sensor exits from normal mode (8 temperature channels are not provided anymore), enters in setup mode and acknowledges request.
- At this point, tool can read (command 0x30) or write (command 0x40) any parameter of selected sensor thanks to sensor's unique ID.
- When parameters are set as expected, tool sends a "save&reset" command (0x50) to selected sensor. Then, sensor stores parameters in EEPROM and makes a reset in order to apply parameters.