

A-CAN-DG-V2

Analog to CAN Converter

8 Analog + 2 Digital inputs

SN: I#####

Texense sensors are designed for data logging. Should the users want to include this sensor in a closed loop system, they must undertake total responsibility from doing so.

Analog inputs features				
Analog Inputs	Available ranges	0...+5 ±10 ⁽¹⁾	V	
	Pull-up	Internal		
	Input impedance	0 ... 5V	1	MΩ
		±10V	400	kΩ
	Accuracy (in the -40°C to +125°C temperature range)	0.5	% FS	
Sampling (per channel)	500	Hz		
Anti-Aliasing Filter (optional) ⁽²⁾	Type	Low pass, Linear phase 5 th order		
	Cut-off frequency at -3dB	Programmable from 15 to 250Hz		
Digital inputs features				
Digital Inputs	Square wave level	0 to 5 or NPN open collector	V	
	Pull-up	10kΩ to 5V		
	Max frequency ⁽³⁾	8	kHz	
	Max wheel and engine speed calculation frequency	200	Hz	
Wheel Speed	Range	0 to 500	kph	
		0 to 500	mph	
	Circumference	300 to 5000	mm	
	Wheel tops/rev.	1 to 100	Tops/rev	
Resolution		0.01	kph/bit	
		0.01	mph/bit	
Engine speed	Range	0 to 2000	rpm	
	Engine tops/rev.	1 to 100	Tops/rev	
	Resolution	1	rpm/bit	

(1) For ±10V input range, anti-aliasing filter option is not available.

(2) If filter option is used:

- The speed inputs are disabled.
- Pin 11 and 12 must not be connected.
- Frame Tx3 is not sent.

(3) Check max frequency for digital inputs as below:

Ex1: 8000rpm with 48 tops/rev → 8000/60x48 = 6.4KHz.

Ex2: 360km/h with 2m wheel circumference and

100 tops/rev → 360/3.6 / 2 x 100 = 5 KHz.

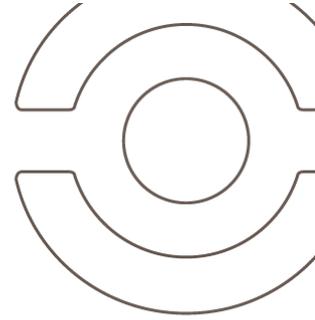
Date		Operator	
Customer			
Order			
Product Ref	A-CAN-DG-V2-##-##		
SW version	V###		

CAN bus features		
CAN bus 2.0A or 2.0B	120Ω: <input type="checkbox"/> yes <input checked="" type="checkbox"/> no	
Baud rate	125k to 1Mbps	
Parameters	identifiers, baudrate, frequency, digital and analog inputs parameters.	
Output frequency	1Hz to 500Hz ⁽⁴⁾ , request mode.	
Output format	16bits or mV	
Electrical features		
Supply voltage	6 to 16	V
Typical supply current	35	mA
Sensor supply output	Protected supply 6 to 16V (0.5A max) 5V 100mA@85°C	
Mechanical features		
Dimensions	See \$Mechanical drawing	
Material	Aluminum	
Weight	45	g
Protection	IP67	
Vibration test	20Gpp 5'	
Operating temperature	-40 to +125	°C
Storage temperature	-40 to +125	°C

⁽⁴⁾ 500Hz: Only with baudrate 1Mbps

Wheel and engine speeds are not available at this frequency.

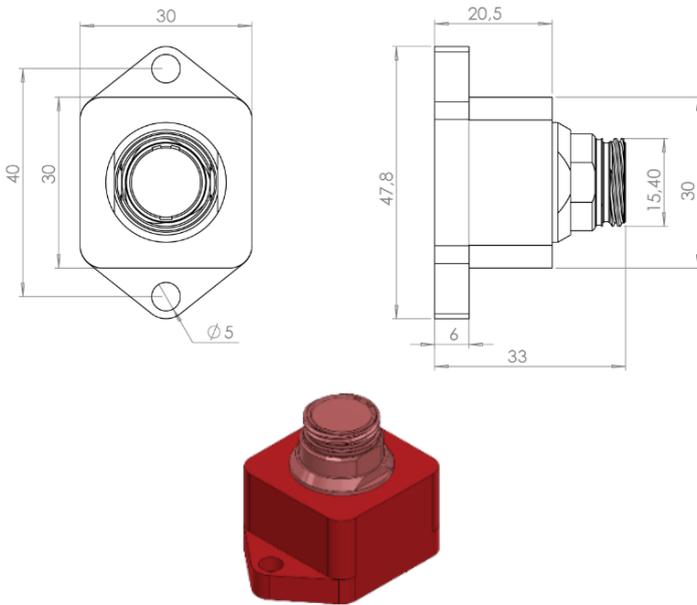
Setup parameters		
CAN	2.0A	2.0B
Baudrate	1M	bps
Frequency	10	Hz
Rx trig ID	7F0	Hex
Tx1 ID	3F0	Hex
Tx2 ID	3F4	Hex
Tx3 ID ⁽²⁾		Hex
Output format	16bits	mV
Cut off frequency ⁽¹⁾		Hz
Speed unit ⁽²⁾	km/h	mph
Wheel circumference ⁽²⁾		mm
Wheel tops / rev ⁽²⁾		tops / rev
Engine tops / rev ⁽²⁾		tops / rev



Mechanical drawing and pinout

Standard version:

Connector: LEMO HES.2M.319.XLDP
Mating connector: LEMO FGS.2M.319.XLM

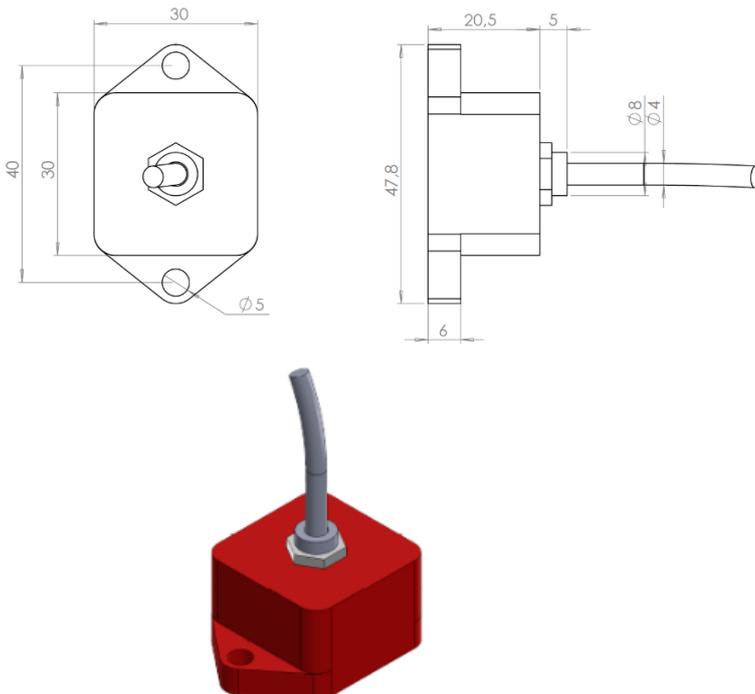


Function	Description	Pin
Supply	Supply (6 to 16 V)	1
	GND ⁽¹⁾	2
Analog Inputs	Channel 1	3
	Channel 2	4
	Channel 3	5
	Channel 4	6
	Channel 5	7
	Channel 6	8
	Channel 7	9
	Channel 8	10
Digital Inputs	Wheel speed	11
	Engine speed	12
CAN	CAN High	13
	CAN Low	14
manufacturer reserved	do not connect	15
Sensor supply	Protected supply 6 to 16V (0.5A max)	16
	5V	17
	GND ⁽¹⁾	18
	GND ⁽¹⁾	19

(1) Ground pins are internally connected

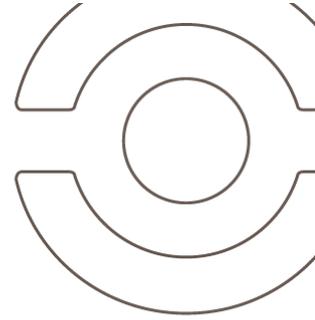
Cable version:

Cable: 19x28AWG, type 55M, 450V, 200°C
Tubing: RW-200-E-3/16
Cable length: 500mm



Function	Description	Wire color	Ring
Supply	Supply (6 to 16 V)	Red	Brown
	GND ⁽¹⁾	Black	Red
Analog Inputs	Channel 1	White	Orange
	Channel 2		Yellow
	Channel 3		Green
	Channel 4		Blue
	Channel 5		Purple
	Channel 6		Grey
	Channel 7		White
	Channel 8		Brown Black
Digital Inputs	Wheel speed	Orange	Brown Brown
	Engine speed		Brown Red
CAN	CAN High	Yellow	Brown Orange
	CAN Low	Blue	Brown Yellow
manufacturer reserved	do not connect	Green	Brown green
Sensor supply	Protected supply 6 to 16V (0.5A max)	Red	Brown Blue
	5V	Red	Brown Purple
	GND ⁽¹⁾	Black	Brown Grey
	GND ⁽¹⁾	Black	Brown White

(1) Ground pins are internally connected



CAN data output

Measure	Unit configuration	Range	Resolution	Data type	Comment
ANA voltage signal	mV	0...5V	1 mV/bit	Unsigned int 16 bits	
		±10V	1 mV/bit	Signed int 16 bits	
	16 bits	0...5V	0.0763 mV/bit	Unsigned int 16 bits	
		±10V	0.1526 mV/bit	Unsigned int 16 bits	Offset of 32768. 0 bits = -10V and 65535 bits = 10V
Wheel speed	kph	0...500 kph	0.01 kph/bit	Unsigned int 16 bits	Check max frequency for digital inputs as below: Ex1: 8000rpm with 48 tops/rev → 8000/60x48 = 6.4KHz.
	mph	0...500 mph	0.01 mph/bit	Unsigned int 16 bits	
Engine speed		see comment	1 rpm/bit	Unsigned int 16 bits	Check max frequency for digital inputs as below: Ex2: 360km/h with 2m wheel circumference and 100 tops/rev → 360/3.6 /2 x100 = 5 KHz.

TX Frame #01

ID	Byte 0	Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7
0x03F0 (default)	MSB	LSB	MSB	LSB	MSB	LSB	MSB	LSB
	Channel 1 voltage		Channel 2 voltage		Channel 3 voltage		Channel 4 voltage	

TX Frame #02

ID	Byte 0	Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7
0x03F4 (default)	MSB	LSB	MSB	LSB	MSB	LSB	MSB	LSB
	Channel 5 voltage		Channel 6 voltage		Channel 7 voltage		Channel 8 voltage	

TX Frame #03

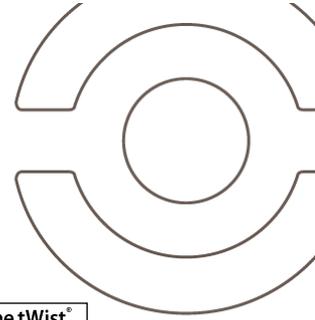
ID	Byte 0	Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7
0x03F8 (default)	MSB	LSB	MSB	LSB	Not used	Not used	Not used	Not used
	Wheel speed		Engine speed					
	Unsigned int 16 bits		Unsigned int 16 bits					

CAN data input

Rx Trig frame, for CAN request mode only

RX Frame

ID	Byte 0	Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7
0x07F0 (default)	-	-	-	-	-	-	-	-



Parameters

Must be setup according to Texense CAN protocol, or by using the tWist® software (texense Windows software tool) with the tSIB (texense Smart Interface Box).

CAN bus parameters:

Address	Parameter	Raw values	Values	Comments	
0x00	Baudrate & CAN Type	0x00	CAN2.0A 1Mbps	Default	
		0x01	CAN2.0A 500 Kbps		
		0x02	CAN2.0A 250 Kbps		
		0x03	CAN2.0A 125 Kbps		
		0x10	CAN2.0B 1Mbps		
		0x11	CAN2.0B 500 Kbps		
		0x12	CAN2.0B 250 Kbps		
		0x13	CAN2.0B 125 Kbps		
0x01	Emission frequency	0x00	Rx frame trig	Request mode - 100Hz max.	
		0x01	1 Hz	Default	
		0x02	5 Hz		
		0x03	10 Hz		
		0x04	50 Hz	Only with baudrate 1Mbps. Speeds are not available for this frequency.	
		0x05	100 Hz		
		0x06	200 Hz		
		0x07	500 Hz		
0x02	Rx frame ID	if CAN2.0A: 0 to 0x7F0		MSB	Default 0x07F0
0x03		if CAN2.0B: 0 to 0xFFFF		LSB	
0x04	Tx1 frame ID	if CAN2.0A: 0 to 0x7F0		MSB	Default 0x03F0
0x05		if CAN2.0B: 0 to 0xFFFF		LSB	
0x06	Tx2 frame ID	if CAN2.0A: 0 to 0x7F0		MSB	Default 0x03F4
0x07		if CAN2.0B: 0 to 0xFFFF		LSB	
0x08	Tx3 frame ID	if CAN2.0A: 0 to 0x7F0		MSB	Default 0x03F8
0x09		if CAN2.0B: 0 to 0xFFFF		LSB	

Digital Input parameters:

0x0A	Speed Unit	0	0.01 mph/bit	Default	
		1	0.01 kph/bit		
0x0B	Wheel circumference	300 to 5000	mm	MSB	Default 2000
0x0C				LSB	
0x0D	Wheel tops / rev	1 to 100		Default 1	
0x0E	Engine tops / rev	1 to 100		Default 1	

Analog Input parameters:

0x0F	Output format	0	16bits	Default 1 (mV)
		1	mV	
0x10	Cut off frequency ⁽¹⁾	15 to 250	Hz	Default 250

(1) Only for AA option. Not available for ±10V input range.

Ordering information

Ordering ref:

A-CAN-DG-V2 - Input range - AA filter - Option

5: 0V...5V input range
10: ±10V input range

C: Cable
N: None
F: Filter

ex: A-CAN-DG-V2-5-N