

# A-CAN-DG-V2.1-

Analog to CAN Converter  
8 Analog + 2 Digital Inputs

SN: DXXXXXXX Software version: vX.XX

Texsys 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.

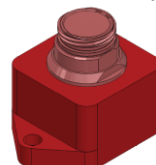
Analog Inputs	Range	0-5 or ±10	Volts	
	Resolution	0.0763 / 0.305 or 1	mV/bit	
	Pull down	internal		
	Accuracy	0.5 (-40 / 125°C)	% FS	
	Input impedance	40	kΩ	
	Sampling (per channel)	4	kHz	
Anti-Aliasing Filter	Type	Low pass, SRRC or Butterworth		
	Cut-off frequency	Programmable from 15 to 500Hz*		
Digital Inputs	Square wave level	0 to 5	V	
	Pull up	external		
	Freq. max	200	kHz	
	Tops	1 to 100	Tops/rev	
	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 x100 = 5kHz. Ex3: 1000Hz with 100 tops/rev → 1000 x100 = 100kHz			
	Wheel Speed	Range	0 to 500	km/h
Circumference		300 to 5000	rev. [mm]	
Resolution		0.01	kmh/bit	
Engine speed	Resolution	1	rpm/bit	
Frequency meter	Resolution	1	Hz/bit	
Sensor supply Output		Protected supply 6 to 16V (0.5A max) 5V 100mA @85°C		
CAN bus 2.0 A or B		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 1kHz**, request mode.		
Output Data		16 bits per channel		
Output format		16bits or mV		
Supply Voltage		6 to 16	V	
Typical Supply Current		35	mA	
Dimensions		48x30x33	mm	
Material		Aluminum		
Weight		45	g	
Protection		IP67		
Vibration test		20Gpp 5'		
Operating Temp		-40 to +125	°C	
Storage Temp		-40 to +125	°C	

\*It is highly recommended to choose:  
Cut-off frequency < 2 x Output Frequency to avoid aliasing measurement  
\*\*1kHz : Only with baudrate 1Mbps  
500Hz max with 500 & 250kbps  
200Hz max with 125kbps

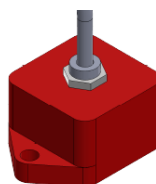
Setup parameters		
CAN	2.0A 2.0B	-
Baudrate	1M	bps
Frequency	1000	Hz
Rx trig ID	7F0	Hex
Tx1 ID	3F0	Hex
Tx2 ID	3F4	Hex
Tx3 ID	3F8	Hex
Output format	16bits mV	-
Filter	Butterworth 2 <sup>nd</sup> order, 500Hz	-
Speed Unit	km/h mph	-
Digital Input 1 mode	Wheel speed	-
Digital input 2 mode	Engine speed	-
Wheel circumference (Input 1)	2000	mm
Wheel circumference (Input 2)	2000	mm
Tops / rev (Input 1)	10	tops / rev
Tops / rev (Input 2)	10	tops / rev

Function	Description	Pin	Wire color	Ring
Supply	Supply (6 to 16 V)	1	Red	Brown
	GND*	2	Black	Red
Analog Inputs	Channel 1	3	White	Orange
	Channel 2	4		Yellow
	Channel 3	5		Green
	Channel 4	6		Blue
	Channel 5	7		Violet
	Channel 6	8		Grey
	Channel 7	9		White
	Channel 8	10		Brown Black
Digital Inputs	Input 1	11	Orange	Brown
	Input 2	12		Brown Red
CAN	CAN HIGH	13	Yellow	Brown Orange
	CAN LOW	14	Blue	Brown Yellow
manufacturer reserved	do not connect	15	Green	Brown green
Sensor supply	Protected supply 6 to 16V (0.5A max)	16	Red	Brown Blue
	5V	17	Red	Brown Violet
	GND*	18	Black	Brown Grey
	GND*	19	Black	Brown White

\* Ground pins are internally connected



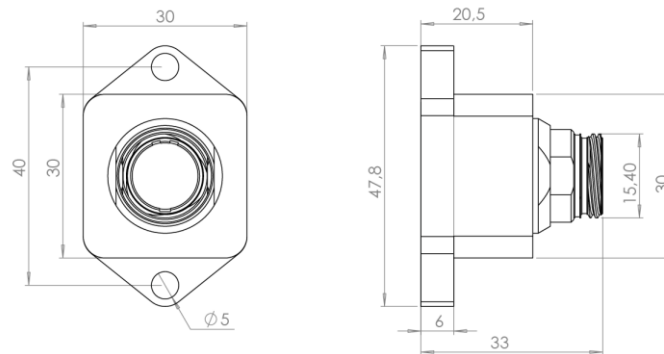
**Standard version:**  
Connector: LEMO HES.2M.319.XLDP  
Mating connector: LEMO FGS.2M.319.XLM



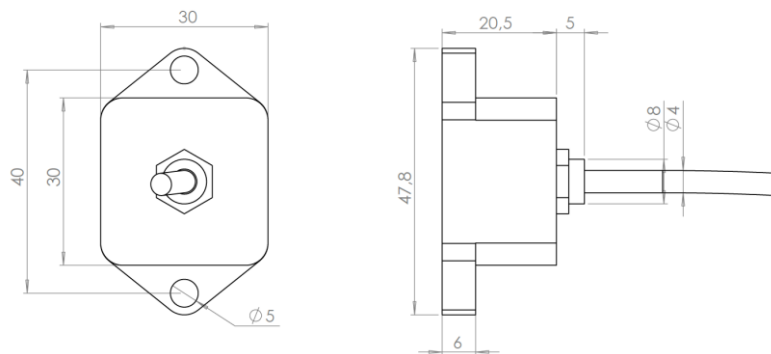
**Cable version:**  
Cable: 19 AWG 28 RW-200-E-3/16  
Cable length: 500mm

## Mechanical design

### Standard version:



### Cable version:



## CAN data output

### Resolution:

- **ANA voltage signal:**
  - If configured to "output format mV": 1 mV/bit
  - If configured to "output format 16 bits":
    - For 0..5V version : 0.0763mV/bit
    - For -10V...+10V version : 0.305mV/bit
- **Wheel speed:**
  - If configured to "km/h": 0.01 (km/h)/bit
  - If configured to "mph": 0.01 mph/bit
- **Engine revs:** 1 rpm/bit
- **Frequency meter:** 1 Hz/bit

### TX Frame #01

ID	Byte 0		Byte 1		Byte 2		Byte 3		Byte 4		Byte 5		Byte 6		Byte 7	
	MSB	LSB	MSB	LSB	MSB	LSB	MSB	LSB	MSB	LSB	MSB	LSB	MSB	LSB	MSB	LSB
0x03F0 (default)	Signed integer 16bits		Signed integer 16bits		Signed integer 16bits		Signed integer 16bits		Signed integer 16bits		Signed integer 16bits		Signed integer 16bits		Signed integer 16bits	
	Channel 1 voltage		Channel 2 voltage		Channel 3 voltage		Channel 4 voltage		Channel 5 voltage		Channel 6 voltage		Channel 7 voltage		Channel 8 voltage	

### TX Frame #02

ID	Byte 0		Byte 1		Byte 2		Byte 3		Byte 4		Byte 5		Byte 6		Byte 7	
	MSB	LSB	MSB	LSB	MSB	LSB	MSB	LSB	MSB	LSB	MSB	LSB	MSB	LSB	MSB	LSB
0x03F4 (default)	Signed integer 16bits		Signed integer 16bits		Signed integer 16bits		Signed integer 16bits		Signed integer 16bits		Signed integer 16bits		Signed integer 16bits		Signed integer 16bits	
	Channel 5 voltage		Channel 6 voltage		Channel 7 voltage		Channel 8 voltage		Channel 9 voltage		Channel 10 voltage		Channel 11 voltage		Channel 12 voltage	

### TX Frame #03

ID	Byte 0		Byte 1		Byte 2		Byte 3		Byte 4		Byte 5		Byte 6		Byte 7	
	MSB	LSB	MSB	LSB	MSB	LSB	MSB	LSB	MSB	LSB	MSB	LSB	MSB	LSB	MSB	LSB
0x03F8 (default)	Unsigned integer 16bits		Unsigned integer 16bits		Unsigned integer 16bits		Unsigned integer 16bits		Not used		Not used		Not used		Not used	
	Digital Input 1		Digital Input 2		Digital Input 3		Digital Input 4		Digital Input 5		Digital Input 6		Digital Input 7		Digital Input 8	

## CAN data input

### Trig frame on CAN request mode :

RX Frame

ID	Byte 0	Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7
0x07F0 (default)	-	0x00, 0x07 or 0xFF (all Msg) 0x01 → Enable frame 1 0x02 → Enable frame 2 0x03 → Enable frame 3	-	-	-	-	-	-

## Changing parameters

Must be setup according to Texense's CAN protocol, or by using the Texense Android Smart Tool (tAST®) with your android device or tSIB. Contact us at [info@texense.com](mailto:info@texense.com)

CAN parameters:

N°	Parameter	Raw values	Values	Comments	
0x00	Baudrate & CAN 2.0A or 2.0B (11 or 29bits ID)	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 - 500Hz max.	
		0x01	1 Hz		
		0x02	5 Hz		
		0x03	10 Hz		
		0x04	50 Hz		
		0x05	100 Hz		
		0x06	200 Hz		
		0x07	500 Hz		
0x08	1kHz	Default			
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 (only in wheel speed mode)	0	0.01 mph/bit	Default 1 (0.01 km/h/bit)	
		1	0.01 km/h/bit		
0x0B	Wheel circumference (input 1)	300 to 5000	mm	MSB	Default 2000
0x0C				LSB	
0x0D	Wheel circumference (input 2)	300 to 5000	mm	MSB	Default 2000
0x0E				LSB	
0x0F	Tops / rev (input 1)	1 to 100			Default 10
0x10	Tops / rev (input 2)	1 to 100			Default 10
0x11	Digital input 1 mode	0x00	Frequency meter mode (Hz/bit)	Default 1 (Wheel speed mode)	
		0x01	Wheel speed mode (mph/ bit or km/h/bit)		
		0x02	Engine speed mode (rpm/bit)		
0x12	Digital input 2 mode	0x00	Frequency meter mode	Default 2 (Engine speed mode)	
		0x01	Wheel speed mode		
		0x02	Engine speed mode		

Analog Input parameters:

0x13	Output format	0	16bits	Default 1 (mV)
		1	mV	

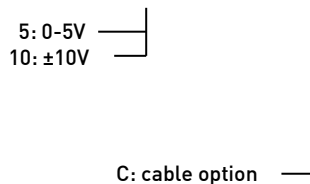
Filter parameters :

0x14	Analog input numeric filter type	0x00	No digital filter on analog inputs	Default 1 (Butterworth)	
		0x01	N <sup>th</sup> Butterworth on analog inputs		
		0x02	SRRC (Linear Phase) with N coefficients on analog inputs		
0x15	Digital filter parameter N	1 to 9 for Butterworth filters 1 to 512 for SRRC filters		MSB	Default 2
0x16				LSB	
0x17	Cut-off frequency of digital filter (if any)	15 to 500Hz		MSB	Default 500 (1Hz/bit)
0x18				LSB	

For complete information, contact us at [info@texense.com](mailto:info@texense.com)

## Ordering reference

### A-CAN-DG-V2.1 – input range – option



Ex: A-CAN-DG-V2.1-5-C → 0-5V, cable