

<b>TPMS-S</b>	
TPMS Sensor	
Ref: TPMS-S	
SN: U#####	Software version: v2.01

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.

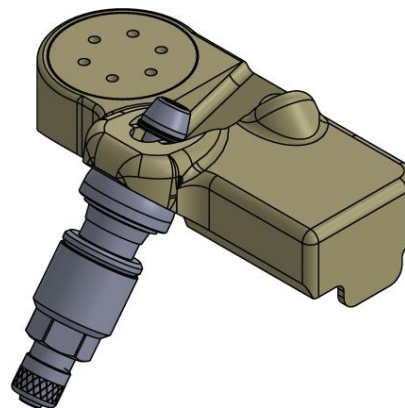
Inner liner temperature measurement			
Range	0 to +200	°C	
Measurement	5 channels (among 14 availables)		
Sensitive Element	Thermopile with Silicon Lens		
Wave Length	8 to 14	µm	
Accuracy	See §Accuracy	%FS	
Calibrator	ECN 100 N12 (e = 1)		
Response time	31	ms	
Resolution	0.1	°C	
Rim temperature measurement			
Range	0 to +150	°C	
Measurement	1 channel by contact pad		
Accuracy	0.3	°C	
Resolution	0.1	°C	
Pressure measurement			
Range	800 to 4000	mbarA	
Accuracy	±20	mbar	
Resolution	0.1	mbar	
Max proof pressure	9	barA	
Internal temperature measurement			
Range	0 to 150	°C	
Accuracy	±0.5	°C	
Air temperature Measurement (optional)			
Accuracy	±0.3	°C	
Resolution	0.1	°C	
Relative Humidity Measurement			
Accuracy	±1.5	%RH	
Resolution	0.001526	%RH	
RF features			
RF Frequency	433 MHz		
Receiver Sensitivity	-112 dBm		
RF Emission power	Configurable 0 to 14 dBm		
Electrical features			
Battery Rating Voltage	3.6	V	
Battery capacity @25°C	550	mAh	
Max current consumption @25°C	Production storage	20	µA
	Stationary cold mode (60 second period)	350	µA
	Stationary hot mode (60 second period)	370	µA
	Moving mode (1Hz)	2	mA
	Transient mode (2Hz)	4	mA

Common features		
Dimensions (without valve)	76 x 40.9 x 24.9	mm
Material	Peek + Epoxy	
Weight (with battery, without valve)	47.5±2	g
Protection	IP42	
Vibration test	20Gpp 5'	
Shock	500	G
Operating Temp	-20 to +120	°C
Absolute Temp	-40 to +150	°C

channel	Inner liner temperature sensor readings	
	@50.0 °C	@180.0 °C
1	°C	°C
2	°C	°C
3	°C	°C
4	°C	°C
5	°C	°C
6	°C	°C
7	°C	°C
8	°C	°C
9	°C	°C
10	°C	°C
11	°C	°C
12	°C	°C
13	°C	°C
14	°C	°C

Pressure sensor readings	
Reference	Measure
@ 2000 mbarA	mbarA
@ 2400 mbarA	mbarA
@ 2800 mbarA	mbarA

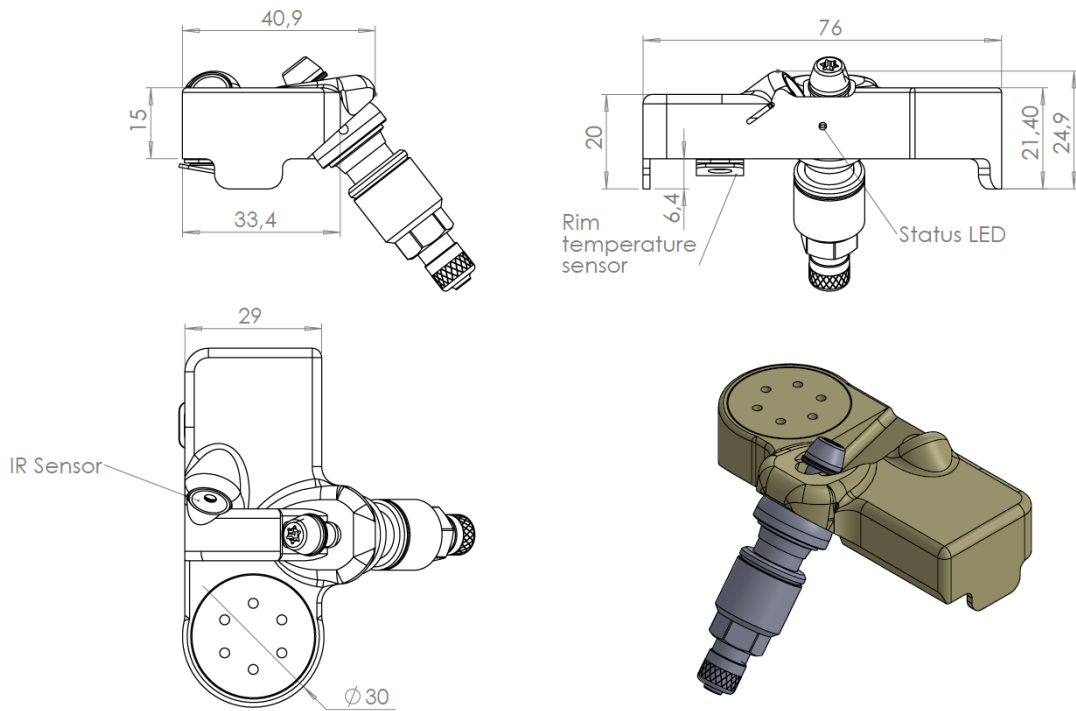
Setup parameters		
Corner	Front Left	
IR pattern	F2 Front	
Car ID	00	-
Tx power	+14	dBm
Acc threshold low	25	G
Acc threshold high	50	G
P threshold low	1350	mbarA
P threshold high	1400	mbarA
Puncture threshold	30	mbar
Transient mode duration	30	s
Temp threshold high	50	°C
Temp threshold low	45	°C
Auto-sleep time	Disabled	h
Idle timeout	120	s



## TPMS-S parameters table

R/W	N°	Parameter	Raw values	Comments	Default value	
R	0x80	Configuration version	0 to 255	-	1	
	0x81	Team ID	0 to 254	-	-	
	0x82	Car ID	0 to 15	-	0	
	0x83	Infrared Pattern	0x00	F2 Front IR Pattern	-	default
			0x01	F2 Rear IR Pattern		
			0x02	F3 Front IR Pattern		
			0x03	F3 Rear IR Pattern		
	0x84	RF Tx power (dBm/bit)	0 to 14	-	-	14 (14dBm)
	0x85	Tyre position / corner	0x00	Front Left	-	default
			0x01	Front Right		
			0x02	Rear Left		
			0x03	Rear Right		
	0x86	Tyre type	0x00	Unknown	-	default
			0x01	Super soft		
			0x02	Soft		
			0x03	Medium		
			0x04	Hard		
	0x87	Unused				
	...					
	0x8B					
	0x8C	Acc_Threshold_high (1G/bit)	0x00 to 0xFF	-	-	0x32 (50G)
	0x8D	Acc_Threshold_low (1G/bit)	0x00 to 0xFF	-	-	0x19 (25G)
	0x8E	P_threshold_high (1mbarA/bit)	0x0000 to 0xFFFF	MSB	-	0x0578 (1400 mbarA)
	0x8F			LSB		
	0x90	P_threshold_low (1mbarA/bit)	0x0000 to 0xFFFF	MSB	-	0x0546 (1350 mbarA)
	0x91			LSB		
	0x92	dP_threshold_high (mbar/s/bit)	0x0000 to 0xFFFF	MSB	-	0x0019 (30mbar)
	0x93			LSB		
	0x94	Transient mode duration (1s/bit)	0x00 to 0xFF	-	-	0x1E (30s)
	0x95	T_threshold_high (1°C/bit)	0x00 to 0xFF	-	-	0x32 (50°C)
0x96	T_threshold_low (1°C/bit)	0x00 to 0xFF	-	-	0x2D (45°C)	
0x97	Auto-sleep duration (1min/bit)	0x0000 : Disabled 0x0001 to 0xFFFF	MSB	-	0x0000 (disabled)	
0x98			LSB			
R	0x99	Production storage lifetime counter (6 minutes/bit)	0x00 to 0xFF	MSB	-	
	0x9A		...	...		
	0x9B		...	...		
	0x9C	Stationary cold mode lifetime counter (30 seconds/bit)	0x00 to 0xFF	LSB	-	
	0x9D		0x00 to 0xFF	MSB		
	0x9E		...	...		
	0x9F	Stationary hot mode lifetime counter (30 seconds/bit)	0x00 to 0xFF	LSB	-	
	0xA0		0x00 to 0xFF	MSB		
	0xA1		...	...		
	0xA2	Moving mode lifetime counter (1 second/bit)	0x00 to 0xFF	LSB	-	
	0xA3		0x00 to 0xFF	MSB		
	0xA4		...	...		
	0xA5	Transient mode lifetime counter (500 ms/bit)	0x00 to 0xFF	LSB	-	
	0xA6		0x00 to 0xFF	MSB		
	0xA7		...	...		
	0xA8	Major software version number	0x00 to 0xFF	LSB	-	
	0xA9		0x00 to 0xFF	MSB		
	0xAA		...	...		
	0xAB	Minor software version number	0x00 to 0xFF	LSB	-	
	0xAC		0x00 to 0xFF	MSB		
0xAD	...		...			
0xAE	Serial number	0x00 to 0xFF	LSB	-		
0xAF		0x00 to 0xFF	MSB			
0xB0		...	...			
0xB1		...	...			
0xB2		0x00 to 0xFF	LSB			

## Mechanical design



## IR sensor accuracy

Accuracy table (% FS)							
Target T°C \ Ambient T°C	0	25	60	100	140	180	200
0	3	2	1.5	1.5	1.5	1.5	1.5
20	3	2	1	1	1	1	1
40	3	2	1	1	1	1	1
60	3	2	1	1	1	1	1
80	3	2	1.5	1	1	1	1
100	3	2	1.5	1	1	1	1
120	3	3	1.5	1.5	1	1	1
140	3	3	1.5	1.5	1	1	1