

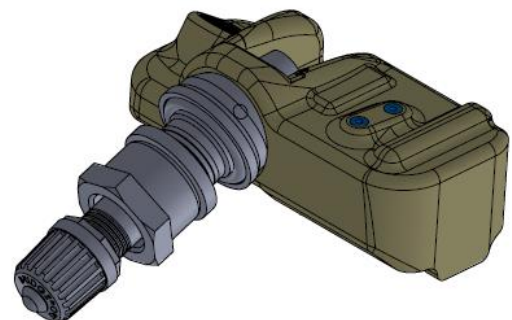
# TPMS-IR21

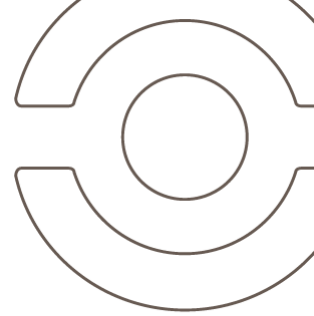
## TPMS Sensor

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.

Pressure measurement		
Range	800 to 9000	mbarA
Accuracy	±20	mbar
Resolution	4	mbar
Max proof pressure	9	barA
Inner liner temperature measurement		
Range	0 to +200	°C
Measurement	5 channels (among 14 available)	
Sensitive element	Thermopile with Silicon Lens	
Wave length	8 to 14	µm
Accuracy	See \$Accuracy	%FS
Calibrator	ECN100 N12 (e=1)	
Resolution	0.1	°C
Rim temperature measurement		
Range	6 to +150	°C
Measurement	1 channel by contact pad	
Accuracy	±0.3	°C
Resolution	0.1	°C
Air temperature measurement		
Range	0 to 130	°C
Accuracy	±0.3	°C
Resolution	0.1	°C
Internal temperature measurement		
Range	0 to 110	°C
Accuracy	0 to 85°C	±0.5 °C
	85 to 110°C	±5 °C
Resolution	0.1	°C
Relative humidity Measurement		
Accuracy	±2	%RH
Resolution	0.1	%RH
RF features		
RF frequency	433	MHz
RF emission power	8	dBm

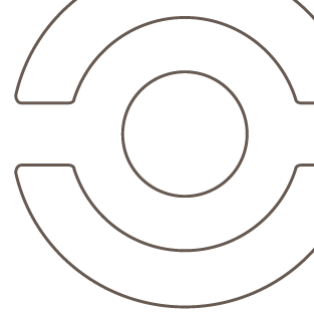
Electrical features		
Battery rating voltage	3.6	V
Battery capacity @25°C	400	mAh
Max current consumption @25°C	Production storage	2 µA
	Stationary cold mode (10 second period)	40 µA
	Stationary hot mode (10 second period)	180 µA
	Moving mode (1Hz)	1.8 mA
	Transient mode (2Hz)	3.5 mA
Common features		
Dimensions (without valve)	55.6x24.7x22.5	mm
Material	Peek	
Weight (with battery, without valve)	24±2	g
Protection	IP42	
Vibration test	20Gpp 5'	
Shock	500	G
Operating Temp	-20 to +125	°C
Storage Temp	-40 to +85	°C



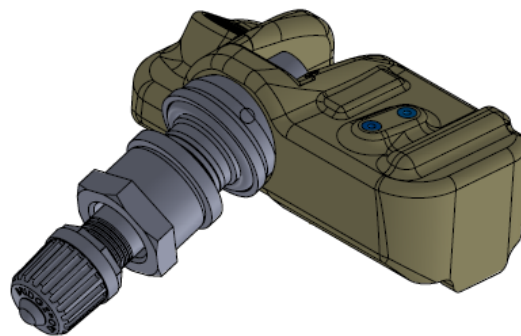
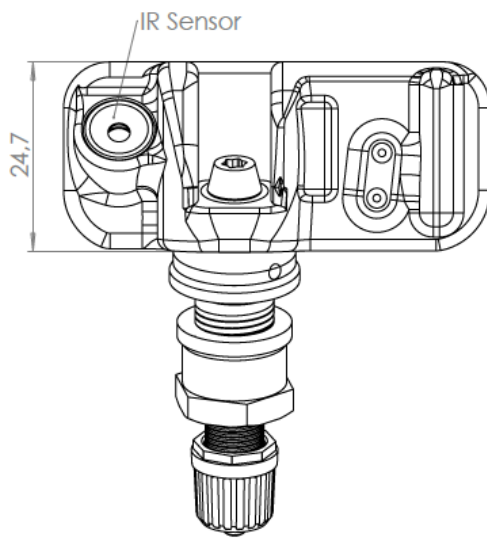
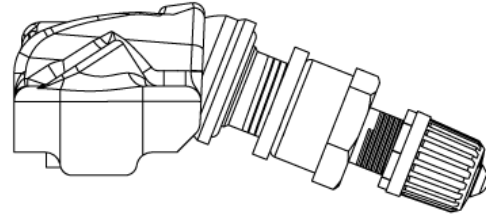
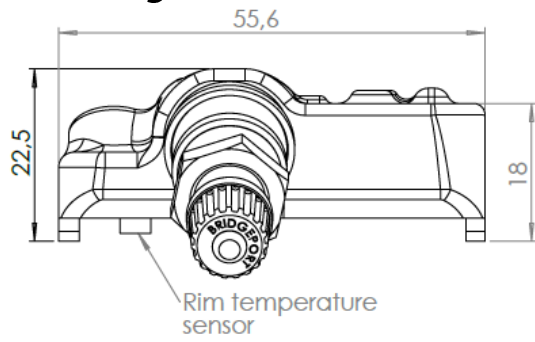


## TPMS-IR21 parameters table

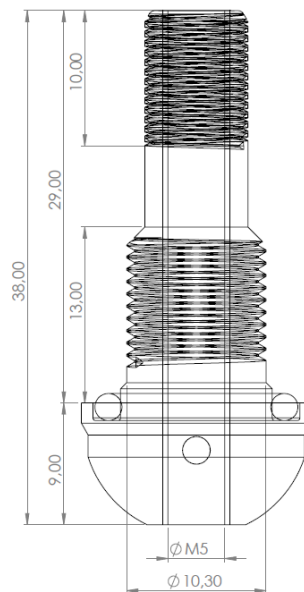
Address	Parameter	Raw values	Comments	Default value
0x80	Configuration version	0x00 to 0xFF		-
0x81	Software version major	0x00 to 0xFF		-
0x82	Software version minor	0x00 to 0xFF		-
0x83	Reserved			
0x84	Serial number	0x00 to 0xFF	MSB	-
0x85		..	..	
0x86		..	..	
0x87		0x00 to 0xFF	LSB	
0x88	Estimated battery use (1mAh/bit)	0x00 to 0xFF	MSB	-
0x89		..	..	
0x8A		..	..	
0x8B		0x00 to 0xFF	LSB	
0x8C	Reserved			
...	Reserved			
0x9C	Reserved			
0x9D	Car ID	0 to 254	-	0
0x9E	Tyre position / corner	0x00	Front Left	default
		0x01	Front Right	
		0x02	Rear Left	
		0x03	Rear Right	
0x9F	Tyre type	0x00 to 0x0F		0x00
0xA0	Accelerometer high threshold (1G/bit)	0x00 to 0xFF	-	0x13 (19G)
0xA1	Accelerometer low threshold (1G/bit)	0x00 to 0xFF	-	0x05 (5G)
0xA2	Pressure high threshold(1mbarA/bit)	0x0000 to 0xFFFF	MSB	0x0578 (1400 mbarA)
0xA3			LSB	
0xA4	Pressure low threshold (1mbarA/bit)	0x0000 to 0xFFFF	MSB	0x0546 (1350 mbarA)
0xA5			LSB	
0xA6	Pressure variation threshold (mbar/bit)	0x0000 to 0xFFFF	MSB	0x001E (30mbar)
0xA7			LSB	
0xA8	Transient mode duration (1s/bit)	0x00 to 0xFF	-	0x1E (30s)
0xA9	Temperature high threshold (1°C/bit)	0x00 to 0xFF	-	0x32 (50°C)
0xAA	Temperature low threshold (1°C/bit)	0x00 to 0xFF	-	0x2D (45°C)
0xAB	Reserved			
0xAC	Auto-sleep duration (1min/bit)	0x0000: Disabled 0x0001 to 0xFFFF	MSB	0x0000 (disabled)
0xAD			LSB	
0xAE	Idle timeout (1s/bit)	0x0000 to 0xFFFF	MSB	0x0078 (120 seconds)
0xAF			LSB	
0xB0	Reserved			
...	Reserved			
0xB3	Reserved			

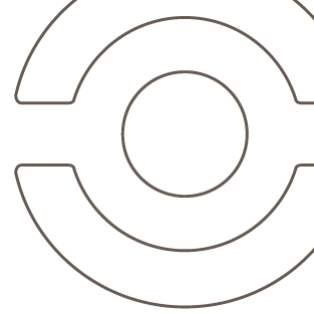


**Mechanical design**



**Valve design (for 11mm hole)**





**IR sensor accuracy**

Accuracy table (% FS)						
Target T°C \ Ambient T°C	25	50	90	130	170	200
25	1	1	1	1	1	1
40	1	1	1	1	1	1
60	2	1	1	1	1	1
80	2	1	1	1	1	1
100	2	1.5	1	1	1	1
120	2	2	2	2	2	2

**Available IR spots**

