

# 胎压监测主机

Tire Pressure Monitoring Unit



## 产品介绍 Product Description

胎压检测主机通过RF无线方式接收胎压传感器发出的数据，将RF信息解调为基带信号并做相关处理后，通过CAN网络把相关信息传输给仪表进行报警提醒，使驾驶人员可以及时有效的处理异常状况，降低危险发生的概率。

RF signal from Tire Pressure Sensor is received by Tire Pressure Monitoring Unit (Tire Pressure Monitoring System Unit), The received RF signal is demodulated to baseband signal and processed by Tire Pressure Monitoring Unit. Then the processed tire data is delivered to instrument cluster to send warning signal by CAN network. Based on the warning signal on instrument cluster, driver will deal with abnormal case in time and the risk occurrence probability will be significantly reduced.

## 产品特征及优势 Feature and Benefits

- 具有高压报警、低压报警、高温报警、快速漏气报警、胎压传感器丢失报警及电池电量低报警。  
High pressure warning, Low pressure warning, High temperature warning, Sensor signal loss warning and Low battery warning.
- 基于CAN通信，含UDS诊断及可通过 Bootloader更新软件功能。  
CAN communication, UDS Diagnosis and Software-upgrading via Bootloader.
- 生产线手动学习功能。  
Manual learning in production line.
- 售后、维修更换传感器自动定位学习功能。  
Auto learning function during aftermarket and repairing.
- 温度自动补偿功能。  
Auto temperature compensation function.
- 小型化模块易于车辆布局安装。  
Easy layout and installation in vehicle due to small profile.
- 轻量化，整体质量小于65g。  
Light weight with the whole weight less than 65 gram.

## 产品作用 Application

胎压监测系统TPMS：通过安装在轮胎内的TPMS 传感器实时监控轮胎气压、温度等参数，TPMS传感器与TPMS检测主机之间通过无线射频通信。当轮胎发生高压、低压、高温等异常状态时，TPMS接收单元发送报警信号给仪表进行报警提醒，使驾驶人员可以及时有效的处理异常状况，降低危险发生的概率。

Tire pressure monitoring system(TPMS): Wireless communication link is made between TPS (Tire Pressure Sensor) and TPU(Tire Pressure Monitoring Unit) after the real-time tire pressure and temperature data is captured by TPS. If abnormal condition occurs such as high-pressure, low pressure and high temperature, warning signal will be sent to instrument cluster by TPMS receiver. Thus, driver may deal with abnormal case in time and the risk occurrence probability will be significantly reduced.

## 操作 Operation

### 基本原理 Basic Principle

胎压监测主机在“ON”档时，开始接收胎压传感器发送的信息，并实时更新压力、温度信息至仪表，仪表显示屏显示每一个轮胎的压力值和温度值，当某一个轮胎的压力值或者温度值变化超过了报警值，仪表能够准确显示报警轮胎位置，并发出图形、文字、声音报警。

Continuous receiving TPS signal mode is entered as soon as TPU goes to “ON ” status. Tire pressure or temperature information of each tire is updated and shown on the instrument cluster in real-time .Exact tire location information along with the graphics、words or sound warning will also be indicated after the tire pressure or temperature threshold is exceeded.

### 连接选项 Connection Options

根据客户选择定制连接系统。

Connection system customized by customer requirement.

### 包装选项 Packaging Options

可提供定制包装以满足客户需要，请联系KESENS技术部了解详情。

Custom packaging can be provided to meet customer requirement, please contact KESENS Engineering for detail.

## 技术参数 Functional Characteristics

参数 Parameters	条件 Condition	最小 Min	额定 Rated	最大 Max	单位 Unit
调制模式 Modulation Mode	频移键控 FSK				
波特率 Baud Rate	-40℃ ~ 85 ℃		9600		Bit/s
编码格式 Code Format	标准曼彻斯特编码 Manchester Code				
中心频率 Center Frequency	25℃		433.92		MHz
接收灵敏度 Receiving Sensitivity				-96	dBm
工作温度范围 Operating Range		-40		85	℃
存储温度范围 Storage Range		-40		85	℃
工作电压 Operating Voltage		9		16	V
工作电流 Operating Current				80	mA
静态电流 Quiescent current				1.5	mA

## 胎压传感器

### Tire Pressure Sensor



## 产品介绍 Product Description

胎压传感器主要用于采集轮胎气压及温度，通过无线通讯方式发射给接收器。

Tire pressure sensor (TPS) mainly focus on data collection of tire pressure and temperature and transforming the collected analog signal to wireless RF modulated signal such that it can be received by Tire Pressure Monitoring System

## 产品特征及优势 Feature and Benefits

- 具有传感器本体和气门杆连为一体，不需要再单独配气门嘴；相对外置式传感器来说比较美观，防盗，充放气方便。

TPS is the combination of sensor itself and valve stem without the additional valve; It is more fine and convenient in charge or discharge scenario. Also, better anti-theft function is available.

- 胎压，胎温，加速度等的感知侦测。

Sensing of tire pressure, tire temperature and accelerated speed signal etc.

- 支持售后、维修更换传感器自动学习标定功能。

Auto learning function during aftermarket and repairing.

- 生产线手动学习功能。

Manual learning in production line.

- 支持不同尺寸和型号的轮胎装配。

Enable to install to the tires with different size and type.

- 轻量化，整体质量小于25g。

Light weight with the whole weight less than 25 gram.

## 产品作用 Application

胎压传感器适用于大多数无内胎的轮胎，传感器安装在汽车轮胎内，直接监测轮胎的压力和温度，并将数据以无线方式传给监测器（接收器）。

TPS is designed to application in most tubeless tire. TPS installed in the inside of tires can monitor tire pressure and tire temperature, then transmit the message with wireless signal to the tire pressure receiver.

## 操作 Operation

### 基本原理 Basic Principle

处于正常工作模式的胎压传感器会实时监测轮胎内部压力、温度、加速度等模拟信号，传感器会将采集到的模拟信号转换为数字信号并以足够高的功率辐射出去从而被外部胎压接收机有效接收。

When TPS is in normal operation mode, these analog signal such as tire pressure, tire temperature, acceleration will be continuously sampled. After these analog signal is converted to digital signal inside the TPS, TPS will radiate the digitalized signal to the free space with enough power so that the TPS signal will be received by TPMS receiver efficiently.

连接选项 Connection Options

根据客户选择可定制金属或橡胶气帽。  
Metal or plastic valve cap available followed by customer requirement.

包装选项 Packaging Options

可提供定制包装以满足客户需要，请联系KESENS技术部了解详情。  
Custom packaging can be provided to meet customer requirement, please contact KESENS Engineering for detail.

技术参数 Functional Characteristics

参数 Parameters	条件 Condition	最小 Min	额定 Rated	最大 Max	单位 Unit
高频调制模式 HF Modulation Mode	频移键控 FSK				
波特率 Baud Rate	-40℃ ~ 85 ℃		9600		Bit/s
编码格式 Code Format	标准曼彻斯特编码 Manchester Code				
中心频率 Center Frequency	25℃		433.92		MHz
发射功率 RF Power @ 3m peak		70	75	77	dbuV/m
发射时间 Transmission duration	帧时间 Frame Duration		8.53		ms
工作温度范围 Operating Range		-40		85	℃
存储温度范围 Storage Range		-40		85	℃
低频载波频率 LF Carrier Frequency	25℃		125KHz		
低频调制方式 LF Modulation Mode	振幅键控 ASK				
工作电流 Operating Current				8.5	mA
静态电流 Quiescent current				400	nA

## 胎压传感器（蓝牙）

### Tire Pressure Sensor (BLE)



## 产品介绍 Product Description

胎压传感器主要用于采集轮胎气压及温度，通过蓝牙通讯方式发射给接收器。

Tire pressure sensor (TPS) mainly focus on data collection of tire pressure and temperature and transforming the collected analog signal to Bluetooth communication for receiving by the Bluetooth host.

## 产品特征及优势 Feature and Benefits

- 具有传感器本体和气门杆连为一体，不需要再单独配气门嘴；相对外置式传感器来说比较美观，防盗，充放气方便。

TPS is the combination of sensor itself and valve stem without the additional valve; It is more fine and convenient in charge or discharge scenario. Also, better anti-theft function is available.

- 胎压，胎温，加速度等的感知侦测。

Sensing of tire pressure, tire temperature and accelerated speed signal etc.

- 支持售后、维修更换传感器自动学习标定功能。

Auto learning function during aftermarket and repairing.

- 生产线手动学习功能。

Manual learning in production line.

- 支持不同尺寸和型号的轮胎装配。

Enable to install to the tires with different size and type.

- 轻量化，整体质量小于25g。

Light weight with the whole weight less than 25 gram.

## 产品作用 Application

胎压传感器适用于大多数无内胎的轮胎，传感器安装在汽车轮胎内，直接监测轮胎的压力和温度，并将数据以蓝牙方式传给监测器（接收器）。

TPS is designed to application in most tubeless tire. TPS installed in the inside of tires can monitor tire pressure and tire temperature, then transmit the message with BLE signal to the tire pressure receiver.

## 操作 Operation

### 基本原理 Basic Principle

处于正常工作模式的胎压传感器会实时监测轮胎内部压力、温度、加速度等模拟信号，传感器会将采集到的模拟信号转换为数字信号并以蓝牙通讯方式发出去从而被蓝牙主机接收。

When the tire pressure sensor is in normal working mode, it will monitor the analog signals such as internal pressure, temperature and acceleration of the tire in real time. The sensor will convert the collected analog signals into digital signals and send them out via Bluetooth communication for receiving by the Bluetooth host.

## 连接选项 Connection Options

根据客户选择可定制金属或橡胶气帽。

Metal or plastic valve cap available followed by customer requirement.

## 包装选项 Packaging Options

可提供定制包装以满足客户需要，请联系KESENS技术部了解详情。

Custom packaging can be provided to meet customer requirement, please contact KESENS Engineering for detail.

## 技术参数 Functional Characteristics

PARAMETER 参数	SPECIFICATION 规格			UNIT 单位	REMARK 备注
	MIN. 最小值	TYP. 典型值	MAX. 最大值		
Operated Temperature 操作温度	-40	25	105	°C	
Working Frequency 工作频率	2.4	-	2.4835	GHz	±150kHz, GFSK, 1Mbps, BLE 5.1
Transmit Power 发送功率	-	-	10	mW	EIRP
LF Frequency 低频频率	-	125	-	kHz	+/-10%, ASK, Manchester
Pressure Range 压力量程	100	-	900	kPa	
Pressure Accuracy 压力精度	-5	-	5	kPa	0°C~70°C (100-500kPa)
	-10	-	10	kPa	-40°C~0°C, 70°C~125°C (100-500kPa)
	-15	-	15	kPa	-40°C~-20°C, 70°C~125°C (500-900kPa)
Temperature Range 温度量程	-40	-	125	°C	
Temperature Accuracy 温度精度	-3	-	3	°C	-10°C~90°C
	-5	-	5	°C	-40°C~-10°C, 90°C~125°C
Accelerated Range 加速度量程	-120		120	g	向心加速度
Accelerated Accuracy 加速度精度	-3	-	3	g	ain  < 20g, -40°C~90°C
	-5	-	5	g	ain  < 20g, 90°C~125°C
Using Life 使用寿命	10	-	-	年	每天行驶2小时
Waterproof Level 防水等级	IP69				

可根据客户需求定制产品，如有需求请联系我们。

Customized products available upon request. Contact us for details.

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