

进气温度压力传感器 Temperature Absolute Pressure Sensor

产品介绍 Product Description

进气温度压力传感器由压力传感器与温度传感器两者合二为一组成进气温度压力传感器。

The TMAP is composed of pressure sensor and temperature sensor.

产品特征及优势 Feature and benefits

- ◆ TMAP 可以提供两个信号
The TMAP sensor provides 2 outputs
- ◆ 来源于压力感应元件并经芯片处理后的进气绝对压力信号
Intake manifold absolute pressure output /Derived from a MEMS based sensing element
- ◆ 来源于热敏电阻的进气温度信号
Intake manifold air temperature output / Provided by a NTC thermistor Together with information of cylinder volume, we can calculate the air mass.
- ◆ 外观和客户接口可以与 Bosch 产品兼容
Performance and customer interface compatible with Bosch TMAP
- ◆ 单芯片解决方案，电路单元利用 SMT 技术贴装
Single chip solution , SMT for EMA fabrication process
- ◆ 利用 NTC 电阻进行温度测量，电阻焊进行 NTC 组装
NTC thermistor for temperature measurement, resistance welding used for assembly
- ◆ 利用钢球技术进行通气孔密封，激光打标以得到更好的追溯性
Steel ball for vent hole sealing, laser marking for better traceability
- ◆ 根据客户要求，多种量程可选（10-115,10-250,10-300,15-300,20-300,50-400kpa abs）
Different pressure ranges are available on customer request



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TMAP

产品作用 Application

- ◆ 根据 TMAP 输出信号和气缸/歧管容积，ECU 可以得到进气质量，与燃油压力信号配合，ECU 可以得到空气燃油比，从而通过调节喷油时间来获得最佳空气燃油比。
With information of fuel pressure sensor, ECU can calculate the ratio of air & fuel, increase or reduce fuel injecting time to get the optimal ratio of air & fuel.

操作 Operation

◆ 基本原理 Basic principle:

进气温度压力传感器压力部分根据感应进气歧管内的真空变化，再从感知器内部电阻的改变，转换成电压信号，供ECU电脑修正喷油量和点火正时角度。温度部分由一个负温度系数热敏电阻，当温度高，电阻减小当温度低，电阻增大，随着温度电阻的变化，电压变化，0V到5V信号变化。

According to the change of vacuum in intake manifold, the pressure part of intake temperature and pressure sensor

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converts into voltage signal from the change of internal resistance of sensor, which is used for ECU computer to correct fuel injection quantity and ignition timing angle. The temperature part consists of a negative temperature coefficient thermistor. When the temperature is high, the resistance decreases; when the temperature is low, the resistance increases. With the change of temperature resistance, the voltage changes, and the signal changes from 0V to 5V.

◆ 连接选项 Connection options:

根据客户选择定制连接系统

Customized to customer choice of connection system

◆ 包装选项 Packaging Options:

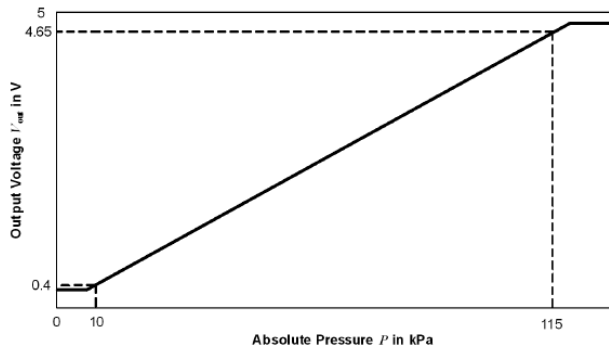
可提供定制包装以满足任何需要，请联系KESENS技术部了解详情。

Custom packaging can be provided to meet any need, please contact KESENS Engineering for details.

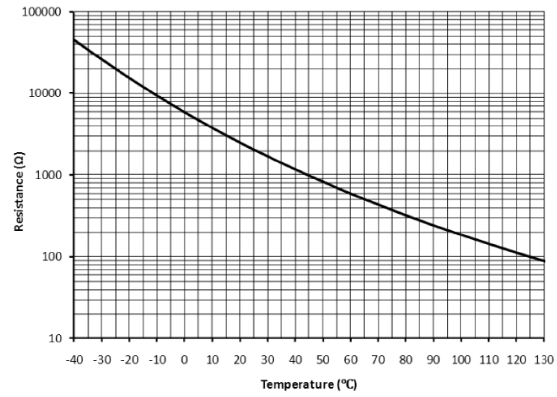
技术参数 Functional Characteristics

参数 PARAMETER	符号 NOTE	最小值 MIN.	额定值 NOM.	最大值 MAX.	单位 UNITS
工作温度 TEMPERATURE RANGE	T	-40		130	°C
压力测量范围 PRESSURE RANGE	P	10		115	kPa
电源电压 SUPPLY VOLTAGE	V _{cc}	4.5	5	5.5	V
电源电流 SUPPLY CURRENT	I _{cc}		8	10	Ma
输出负载电流 OUTPUT LOAD CURRENT	I _L	-1		1	mA
负载电阻 LOAD RESISTANCE	R _{pull-up}	5	59	100	kΩ
	R _{pull-down}	5	59	100	kΩ
额定输出电压 NOMINAL OUTPUT	V _{out}	8		93	%V _{cc}
输出电压上限值 UPPER CLAMPING LEVEL	V _{CL-HI}	4.77	4.8	4.83	V
输出电压下限值 LOWER CLAMPING LEVEL	V _{CL-LO}	0.27	0.3	0.33	V
整体精度误差 OVERALL ACCURACY ERROR	Err			1.6	kPa
压力响应时间 PRESSURE RESPONSE TIME	从 10%到 90%的最输出电压 T _{10/90} 10% TO 90% OF THE FINAL OUTPUT VALUE		0.65	1	ms

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PRESSURE OUTPUT TRANSFER FUNCTION AT $V_{CC} = 5.00V$
 $V_{CC} = 5.00V$ 时压力输出传递函数



可根据需要定制电气和环境规范，详情请联系KESENS技术部。

Custom electrical and environmental specifications can be designed to meet any need, please contact KESENS Engineering for details.