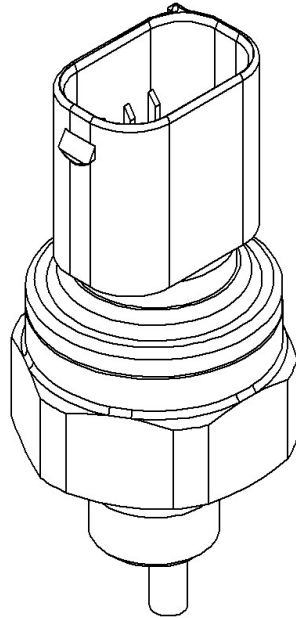


保护式温度压力传感器
TEM000021 产品规格书

PRODUCT SPECIFICATION

TEM000021 PRESSURE&TEMPERATURE TRANSDUCER
FOR PROTECTION



DRAWN WENHUI H	ENGINEER Roger L	APPROVAL Linlin G	ECO #	DATE APR-25-2024
SHEET 1 OF 7	TITLE PRODUCT SPECIFICATION		DRAWING NUMBER TEM000021	REV 3

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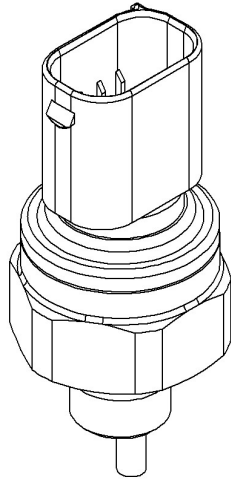
概述 GENERAL DATA

1.1 描述 DESCRIPTION

本篇产品规格书描述了一款压力温度传感器。该传感器提供对应于压力输入的比例输出型电压信号。该传感器可用于测量流体（气体或液体）的压力。

This specification covers a pressure & Temperature sensor in. The sensor shall provide a ratio metric output proportional to the pressure. The sensor should be mounted on the pipe of fluid.

产品所用电子零部件均为车规级认证 All electronic components are AEC Q100/200 qualified.



1.2 结构 CONFIGURATION

外壳 Housing : Hex 24 mm
螺纹 Screw thread : M12×1.25-6g
外部O型圈 External O-ring
电气连接件 Electrical Connector : AMP 1-967640-1 CODE A
传感器外形、材料和尺寸应遵照
The shape, material and the dimensions of the sensor are in accordance with : TEM000021-ENV

1.3 产品编码 PRODUCT CODING

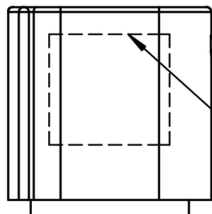
产品编码按照下图所示： Product coding is shown below : 可定制

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打码包含 CODING INCLUDES
 CHUROD产品料号 CHUROD PART NUMBER
 客户料号 CUSTOMER PART NUMBER
 产品序列号(包含日期及唯一识别码) PRODUCT ID

2. 特性 CHARACTERISTICS

2.1 工作环境 OPERATING ENVIRONMENT

工作温度范围 Operating Temperature Range

工作温度 Operating temperature : -40 °C to +140 °C

工作温度-介质 Operating temperature - refrigerant : -40 °C to +150 °C

在工作温度范围内，传感器的性能应符合§2.2.6的要求。

Within operating temperature range, the sensor will perform according to the characteristics listed in §2.2.6.

工作介质 Working medium

工作介质 working medium : Refrigerant R134A/R1234yf/R290
 Combined with PAG/POE

工作压力 Operating Pressure Range

工作压力 Operating pressure : 0.5 to 32 barA (可定制)

安全压力 Proof Pressure

传感器经受 After being subjected to : 64 barA

后，传感器在正常工作压力范围内应符合§2.2.6的要求。

The sensor will return to normal operation, conform the characteristics as described in §2.2.6.

破坏压力 Burst Pressure

破坏压力 Burst pressure : 100 barA

当传感器经受了破坏压力后，传感器不被要求可以恢复到正常工作状态。但是传感器不能再破坏压力下发生泄漏和破裂。

The sensor can not be expected to return to normal operation after having been subjected to the burst pressure. The sensor will not cause leakage of the pressure medium when exposed to pressures up to the burst pressure.

防尘防水等级 IP Rating

防尘防水等级 IP Rating : IP69K

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2.2 电气特性 ELECTRICAL CHARACTERISTICS

供电电压 Supply Voltage (Vcc)

传感器需要一个具有瞬时脉冲冲击保护的稳压电源。传感器可以在指定供电电压范围内正常工作。

The sensor requires a transient protected and regulated voltage supply. The sensor will operate properly at any supply voltage in the range

: 5.0 ± 5 % VDC.

供电电流 Supply Current

传感器的消耗电流小于

The sensor will draw less than

: 15 mA

过电压保护 Over Voltage Protection

传感器可以经受

The sensor is protected for voltages up to
时间长度

: 18 VDC

For

: 60 secs

接口电路原理 Electric Scheme

(可配置以匹配不同的上下拉电阻)

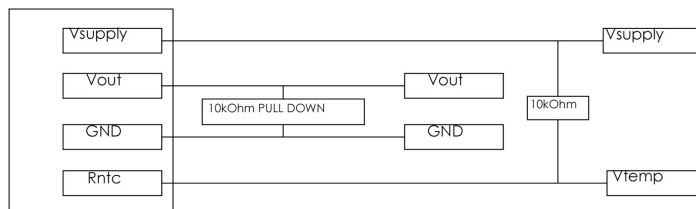
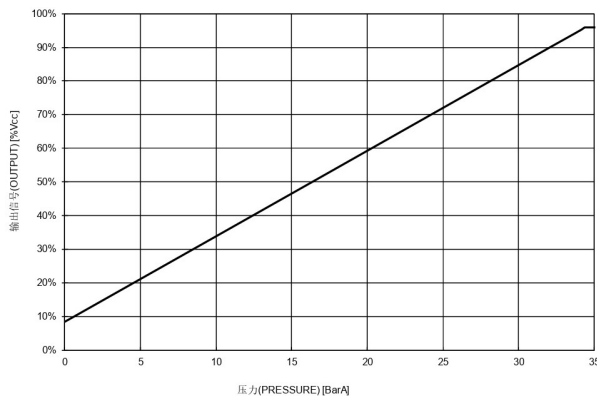


Figure 1: 接口电路原理图 Operating schematic

压力输出特性曲线 Pressure Output Transfer Curve.



输出曲线: $V_{out} = 2.54 \times P + 8.73$

输出电压 V_{out} : %VCC

压力 P : BarA

(注: 产品输出曲线可根据客户需求进行定制)

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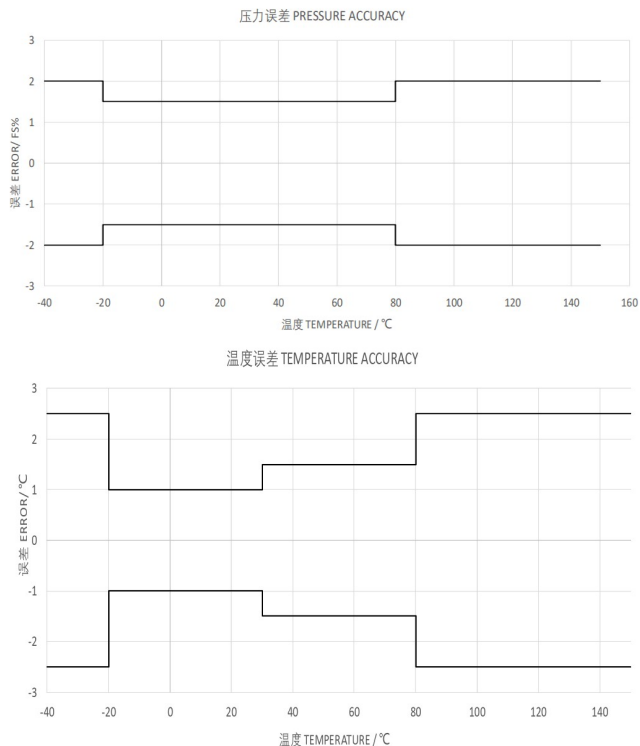
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电阻-温度曲线 R-T CURVE

$R(25^{\circ}\text{C})=10\text{kohm} \pm 1.1\%$; $B(25/100)=3988 \pm 0.5\%$

THERMISTOR RESISTANCE			
T[°C]	Rnom[KΩ]	Rmin[KΩ]	Rmax[KΩ]
-40	335.3	325.8	344.9
-30	177.01	172.57	181.55
-20	97.2	95.05	99.4
-10	55.4	54.32	56.49
0	32.68	32.13	33.24
10	19.91	19.62	20.2
20	12.494	12.343	12.645
25	10	9.89	10.11
30	8.056	7.959	8.154
40	5.327	5.252	5.402
50	3.604	3.546	3.662
60	2.49	2.446	2.535
70	1.755	1.72	1.789
80	1.2587	1.232	1.2858
90	0.918	0.8971	0.9392
100	0.6798	0.6634	0.6966
110	0.5106	0.4976	0.524
120	0.3886	0.3782	0.3993
130	0.2994	0.291	0.3081
140	0.2333	0.2265	0.2404
150	0.1837	0.1781	0.1895

精度 Accuracy



输出误差已包含迟滞误差、重复性误差、线性误差和寿命漂移误差。

The output tolerance includes errors as hysteresis, repeatability, linearity and life.

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压力响应时间 Response Time

该产品压力响应时间小于
The pressure response time of TEM000021 is less than : 10 ms

温度响应时间 Response Time

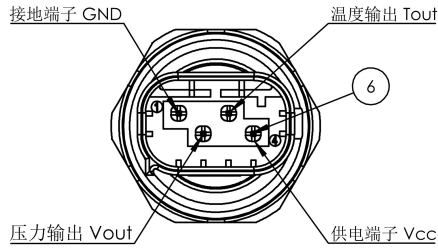
温度响应时间 : T63 ≤ 3s
: T90 ≤ 5s

The temperature response time of TEM000021(T63/T90) is less than : 3/5 s

接插件插针顺序 Connector Pin sequence

接插件插针顺序如下

For the connector pin sequence as below



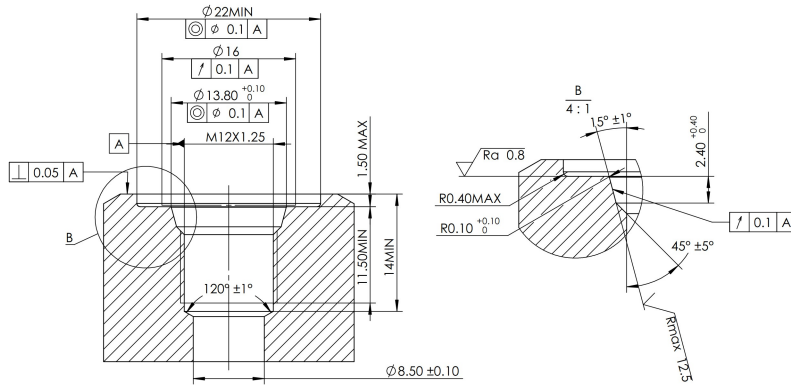
2.3 机械特性 MECHANICAL CHARACTERISTICS

外形尺寸 Dimensions

传感器的尺寸请参考图纸

The sensor will conform to the envelope drawing : TEM000021-ENV

推荐安装端 RECOMMENDED MOUNTING HOLE



安装扭矩 Mounting Torque

传感器的安装扭矩为

Sensor should to mounted by torque : 10 ± 2 N.m

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