

1199 远传膜片密封件系统

1199 Remote Transmitting Diaphragm Sealing System

TK3051DP/TK3051GPTK3051T变送器带远传密封装置后, 就成为TK3051DP/GP/T远传差压/压力变送器。

TK3051DP/GP/T远传差压/压力变送器, 可避免被测介质直接和变送器的隔离膜片接触的可靠测量方法, 它适用于下面几种情况:

- 1、被测介质对变送器接头和敏感元件有腐蚀作用时;
- 2、需要将高温被测介质与变送器隔离时;
- 3、被测介质中有固体悬浮物或高粘度易堵塞变送器接头和压力容室时;
- 4、被测介质用引压管引出易固化或结晶时;
- 5、更换被测介质需要冲洗而不容许交混时;
- 6、必须保持卫生条件, 防止污染时。

TK3051DP/GP/T型带远传密封装置的远传差压/压力变送器, 仍具有TK3051DP/GP/T型差压/压力变送器的各种特点:

提供多种结构材料, 远传装置组件焊接结构, 可靠性强。充液腔低容积设计, 减少温度影响, 根据温度要求使用相应的灌充液。

When TK3051DP/TK3051GPTK3051T transmitter has remote sealing device, it becomes TK3051DP/GP/T remote differential pressure/pressure transmitter.

TK3051DP/GP/T remote transmitting differential pressure/pressure transmitter is a reliable measurement approach which can prevent the medium being measured from directly contacting the isolation diaphragm of the transmitter and it is applicable to the following conditions:

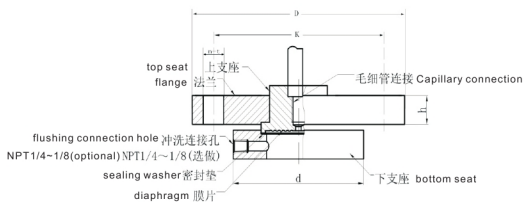
1. When the medium being measured is corrosive to the transmitter joint and sensitive elements;
2. When the high temperature medium being measured has to be isolated from the transmitter;
3. When there are solid suspended matters in the medium or when the medium is highly viscous which is easy to block the transmitter joint and pressure chamber;
4. When the leading-out medium with the pressure-leading tube is easy to solidify or crystallize.
5. When medium replacement requires flushing and it is not easy to mix.
6. When hygiene conditions must be kept to prevent the pollution.

TK3051DP/GP/T remote transmitting differential pressure/pressure transmitter with sealing device still has various characteristics of TK3051DP/GP/T differential pressure/pressure transmitter.

Various structure materials are provided. The assembly welding structure for remote transmitting device is highly reliable. The liquid filling chamber is designed with low volume to reduce the temperature influence. Relevant filling liquid shall be used depending on the temperature requirements.

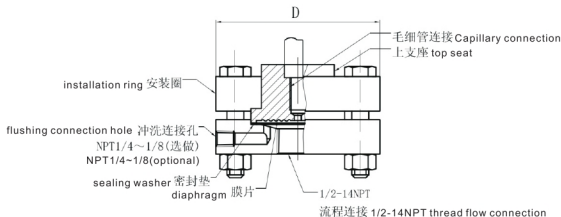
1199RTW型螺纹安装式远传装置 (外形尺寸)

1199RTW screw installation remote transmitting device (outline dimensions)



1199PFW型扁平式远传装置 (外形尺寸)

1199PFW flat remote transmitting device (outline dimensions)



毛细管型号规格表
Capillary mode specification

11	名称 Name
199CAP型 199CAP type	毛细管 Capillary
代号 Code	毛细管材料和尺寸 Material and size of capillary
11	316SST, 内径为 $\phi 0.71\text{mm}$ 316SST, the inner diameter is $\phi 0.71\text{mm}$
13	316SST, 内径为 $\phi 1.09\text{mm}$ 316SST, the inner diameter is $\phi 1.09\text{mm}$
代号 Code	变送器端配件 Accessory parts at the transmitter end
0	1/2-20UNF-2A螺纹 1/2-20UNF-2A thread
代号 Code	结构件材料 Material for structure part
11	上套为 316SST, 安装环为碳钢 316SST for upper part, carbon steel for installation ring
代号 Code	毛细管长度 Length of capillary
5	1.5米 1.5m
10	3.0米 3.0m
15	4.5米 4.5m
20	6.0米 6.0m
25	7.5米 7.5m
30	10米 10m
代号 Code	远传法兰端配件 Accessory parts for remote transmitting flange end
A	1/2-20UNF-2A螺纹 1/2-20UNF-2A thread
C	1/2-20UNF-2A螺纹 1/2-20UNF-2A thread
代号 Code	保护套管 Protection sleeve
11	铠装 300SST 系列不锈钢 Armored 300SST series stainless steel
12	PVC 护套, 铠装 300SST 系列不锈钢 PVC jacket, armored 300SST series stainless steel
1199EFW	11 A 20 A11 典型型号 Typical model

远传法兰灌充液
Filling liquid for remote transmitting flange

代号 Code	远传法兰的灌充液 Filling liquid for remote transmitting flange
C10485-0007 01199-0032-0004 01199-0032-0012	DC-200 硅油- 稳定范围 $-40^{\circ}\text{C} \sim 149^{\circ}\text{C}$ (比重 0.934) DC-200 silicon oil- stability range $-40^{\circ}\text{C} \sim 149^{\circ}\text{C}$ (specific weight 0.934) Slyatherm704 硅油 稳定范围 $-15^{\circ}\text{C} \sim 300^{\circ}\text{C}$ (比重 0.934) Slyatherm704 silicon oil stability range $-15^{\circ}\text{C} \sim 300^{\circ}\text{C}$ (specific weight 0.934) 丙油 稳定范围 $-45^{\circ}\text{C} \sim 205^{\circ}\text{C}$ (比重 1.85) 丙油 stability range $-45^{\circ}\text{C} \sim 205^{\circ}\text{C}$ (specific weight 1.85)
C10485-0007	— 典型型号
C10485-0007	— Typical model

注*不能用于测量真空+测真空时温度极限应降低

Note: * it can not be used to measure the vacuum + the temperature limit shall be lowered when the vacuum is measures

法兰安装远传法兰

Flange installed remote transmitting flange

型号 Model	安装法兰类型Installed flange type	
1199FFW	法兰安装远传法兰Flange installation remote transmitting flange	
代号Code	冲洗备用孔Standby hole for flushing	
11	无None	
21	有Yes	
代号Code	远传装置膜片材料Diaphragm material for remote transmitting device	
A	316LSST	
B	哈氏合金C Hastelloy C-276	
C	钽 Tantalum	
D	蒙耐尔monel	
E	钛titanium	
代号Code	结构件材料Material of structure part	
11	上套为316SS, 法兰为碳钢(电镀) Upper sleeve is 316SS, the flange is carbon steel (electroplating)	
代号Code	下套尺寸和材料Lower sleeve size and materia	
A21	150lb	316SS
B21	150lb	哈氏合金C Hastelloy C
E21	150lb	碳钢 Carbon steel
A41	150lb	316SS
B41	150lb	哈氏合金C Hastelloy C
E41	150lb	碳钢 Carbon steel
A51	150lb	316SS
B51	150lb	哈氏合金C Hastelloy C
E51	150lb	碳钢 Carbon steel
A71	150lb	316SS
B71	150lb	哈氏合金C Hastelloy C
E71	150lb	碳钢 Carbon steel
A22	300lb	316SS
B22	300lb	哈氏合金C Hastelloy C
E22	300lb	碳钢 Carbon steel
A42	300lb	316SS
B42	300lb	哈氏合金C Hastelloy C
E42	300lb	碳钢 Carbon steel
A52	300lb	316SS
B52	300lb	哈氏合金C Hastelloy C
E52	300lb	碳钢 Carbon steel
A72	300lb	316SS
B72	300lb	哈氏合金C Hastelloy C
E72	300lb	碳钢 Carbon steel
A24	600lb	316SS
B24	600lb	哈氏合金C Hastelloy C
E24	600lb	碳钢 Carbon steel
A44	600lb	316SS
B44	600lb	哈氏合金C Hastelloy C
E44	600lb	碳钢 Carbon steel
A54	600lb	316SS
B54	600lb	哈氏合金C Hastelloy C
E54	600lb	碳钢 Carbon steel
A74	600lb	316SS
1199FFW	11	A A21-典型型号

RTW型螺纹安装远传法兰

RTW type bolt installation remote transmitting flange

型号 Model	法兰过程连接型式 Flange process connection type
1199RTW型 1199RTW type	螺纹安装远传法兰 Thread installation remote transmitting flange
代号 Code	清洗连接孔 Cleaning connection hole
11	无 None
21	有 Yes
代号 Code	远传装置膜片材料 Diaphragm material for remote transmitting device
A	316LSST
B	哈氏合金 C-276 Hastelloy C-276
C	钽 Tantalum
代号 Code	结构件材料 Material of structure part
11	上套为 316LSST, 安装环为碳钢 316LSST for upper sleeve Carbon steel for installation ring
代号 Code	下套材料 Material for lower sleeve
A	316LSST
B	哈氏合金 C-276 Hastelloy C-276
C	碳钢 (电镀) Hastelloy C Carbon steel (electroplating)
代号 Code	引压连接孔 Pressure-leading connection hole
11	1/4" NPT(锥管螺纹) (conical pipe thread)
12	3/8" NPT(锥管螺纹) (conical pipe thread)
13	1/2" NPT(锥管螺纹) (conical pipe thread)
15	1" NPT(锥管螺纹) (conical pipe thread)
17	1-1/2" NPT(锥管螺纹) (不带清洗备用孔) (conical pipe thread) (without cleaning standby hole)
1199RTW	11 A 11 A 17 典型型号 Typical model

PFW扁平式远传法兰

PFW flat remote transmitting flange

型号 Model	法兰过程连接型式 Flange process connection type
1199PFW型 1199pfw type	扁平式远传法兰 Flat type remote transmitting flange
代号 Code	型式 Type
11	标准 3" -150和300 lb Standard 3" -150 and 300 lb
代号 Code	远传装置膜片材料 Diaphragm material for remote transmitting device
A	316LSST
B	哈氏合金 C-276 Hastelloy C-276
C	钽 Tantalum
代号 Code	结构件材料 Material of structure part
11	上套为 316LSST, 安装环为碳钢 316LSST for upper sleeve Carbon steel for installation ring
代号 Code	壳体材料 Shell material
11	316LSST
1199PFW	11 A 11 A 17 典型型号 Typical model

EFW型插入筒式远传法兰

EFW type inserted cylindrical remote transmitting flange

型号 Model	法兰过程连接型式 Flange process connection type
11199EFW型 11199EFW type	插入远传法兰 Inserted remote transmitting flange
代号 Code	插入筒直径和接液部材料 Insertion cylinder diameter and material of the liquid connection part s
11	3#316SST 不锈钢 Stainless steel
12	3#哈氏合金 C 不锈钢 Stainless steel
13	4#316SST 不锈钢 Stainless steel
14	4#哈氏合金 C 不锈钢 Stainless steel
代号 Code	远传装置膜片材料 Diaphragm material for remote transmitting device
A	316LSST
B	哈氏合金 C-276 Hastelloy C-276
C	钽 Tantalum
代号 Code	插入筒长度 Insertion cylinder length
20	50mm
40	100mm
60	150mm
代号 Code	法兰规格和材料 Flange specification and material
A11	50#有镀层碳钢, 最大工作压力 =1.97MPa, 在38℃时 50# with coated carbon steel, maximum working pressure=1.97MPa, At 38℃
A12	300#有镀层碳钢, 最大工作压力 =5.1MPa, 在38℃时 300# with coated carbon steel, maximum working pressure=5.1MPa, At 38℃
C13	600#有镀层碳钢, 最大工作压力 =9.9MPa, 在38℃时600# with coated carbon steel, maximum working pressure=9.9MPa, At 38℃
11199EFW	11 A 20 A11 典型型号 Typical model

注:法兰规格、材料和工作压力, 如有特殊需求可另行定制;

Note: the flange specification, material and working pressure can be customized if you have special requirements

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A	1/2-20UNF-2A螺纹 1/2-20UNF-2A thread
C	1/2-20UNF-2A螺纹 1/2-20UNF-2A thread
代号 Code	保护套管 Protection sleeve
11	铠装 300SST 系列不锈钢 Armored 300SST series stainless steel
12	PVC 护套, 铠装 300SST 系列不锈钢 PVC jacket, armored 300SST series stainless steel
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代号 Code	远传法兰的灌充液 Filling liquid for remote transmitting flange
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C10485-0007	— 典型型号
C10485-0007	— Typical model

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TK3051F卫生型压力变送器

TK3051F Hygiene Pressure Transmitter

优异的产品

绝压和表压测量范围: 0-21至0-5512k Pa 0.2%参数精度, 包括线性、迟滞性和重复性影响 量程比 20:1

稳定性0.1%URL/年

用于CIP/SIP应用场合, 温度上限248° F (140°C)

采用HART通讯协议通讯

基于微处理器的电子线路板

双室结构外壳(水密性电性电子外壳)

模块化设计, 令维修快速且经济

抗射频干扰能力

变送器逐台特性化和数字化补偿, 可优化变送器在

整个工作范围内的性能

外部零点和量程调整

Excellent product

Absolute pressure and gauge pressure measurement range: 0-21 to 0-5512k Pa 0.2% parameter accuracy, including linearity, hysteresis and repeatability influence Range ratio 20:1

Stability 0.1%URL/year.

Applied in CIP/SIP, upper limit of temperature 248°F(140°C).

Adopt HART communication protocol.

Electronic circuit board based on micro processor

Modular design, rapid and economical maintenance.

Ability to withstand radio frequency interference.

Characterization of the transmitters one by one and digital compensation, able to optimize the performance within the whole operation range.

External zero point and range adjustment

Design for professional hygiene application.

专业卫生型应用场合设计

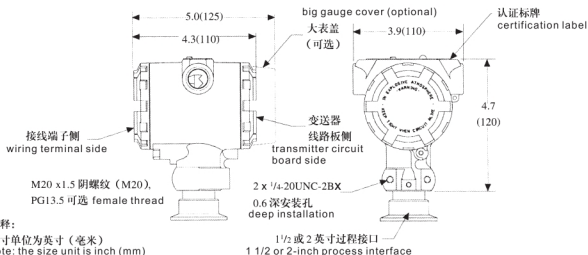
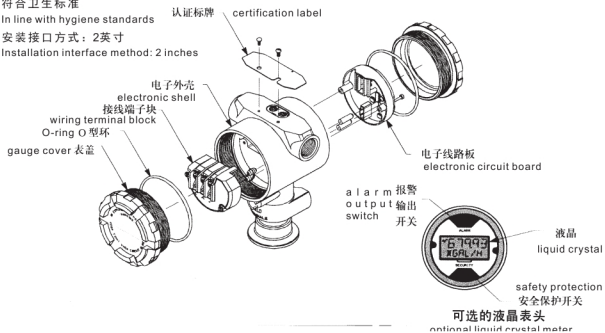
Design for professional hygiene application

符合卫生标准

In line with hygiene standards

安装接口方式: 2英寸

Installation interface method: 2 inches



注释:

尺寸单位为英寸 (毫米)

note: the size unit is inch (mm)

简介

3051F卫生型压力变送器符合卫生标准, 产品接触表面为 CIP清洗而设计, 结构件材料符合卫生要求。

应用

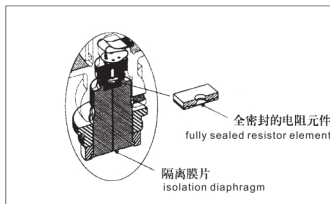
3051F型小巧、稳定、可靠, 是食品和制药行业的理想产品, 可直接安装在过程管线或罐上, 无需支架。过程温度上限为140℃。令3051F型变送器适用于有高温蒸汽清洗的场合。

Introduction

3051F hygiene pressure transmitter meets the hygiene standards. The product contact face is designed for CIP cleaning and the material of structural part meets the hygiene standards.

Application

Being small, stable and reliable, 3051F product is the ideal product for food and pharmaceutical industries and it can be installed directly on the process pipeline or cans without requiring frames. The upper limit of process temperature is 140℃ so that the 3051F transmitter is able to be applied to high temperature steam cleaning.



规格

应用场合

液体、气体、蒸汽和高粘度应用场合。

Specifications

Function index

Applications

Liquid, gas, steam and high viscosity application

量程

Range

量程 Range	最小量程 (智能) Min. Range (Intelligent)	UPL/最大量程/传感器上限 UPL/MAX. Range/Upper Limit of Sensor
1	10.3kPa (103mbar)	200kPa (2.06bar)
2	51.7kPa (517mbar)	1034kPa (10.34bar)
3	276kPa (2.76bar)	2068kPa (20.68bar)

输出: 4~20mA dc/HART数字通讯

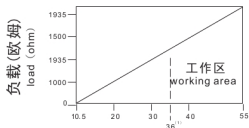
Output: 4~20mA dc/HART digital communication

量程比: 20:1 负载限制

Range ratio: 20:1 load limit

最大回路负载=43.5 (电源电压-10.5)

Maximum circuit load = 43.5 (power supply voltage - 10.5)



电源

要求外部电源供电, 无负载时变送器工作电压10.5~36V, 反向保护是标准的。

Power supply

External power supply is required. The operation voltage for the transmitter without load is 10.5~36V. Reverse protection is standard.

零点正、负迁移

零点可在大气压与量程上限之间(3051F6型)或0kPa与量程上限之间(3051FA型)进行迁移,且校验量程大于或等于最小量程,量程上限值不大于URL(量程上限)。3051F6型不可真空校验。

过压极限

量程1:826.8kPa
其它:2URLh

温度极限

过程: -4至284°F (-20至140°C)
环境: -4至185°F (-20至85°C)
贮存: -22至185°F (-30至85°C)

过程温度高于185°F (85°C), 要求环境温度极限降低超出值的1/1.5。

$$\text{最大环境温度 } (^{\circ}\text{C}) = 85 - \frac{(\text{过程温度} - 85^{\circ}\text{C})}{1.5}$$

$$\text{最大环境湿度 } (^{\circ}\text{F}) = 185 - \frac{(\text{过程温度} - 85^{\circ}\text{C})}{1.5}$$

湿度极限: 0~100%相对湿度

容积变化量: 小于0.00042cm³

启动时间: 2秒, 无需预热

故障报警

如自诊断出传感器或微处理器故障, 变送器则驱动输出一个高或低的报警信号以提醒用户。高或低的报警方式由用户改变 变送器的跳线插针术选择。报警输出值取决于变送器的工厂组态方式: 是标准操作还是符合NAMUR的操作。

标准操作

线性输出: $3.9 \leq I \leq 20.8$
故障高: $I \geq 21.75\text{mA}$
故障低: $I \leq 3.75\text{mA}$

符合NAMUR的操作

线性输出: $3.8 \leq I \leq 20.5$
故障高: $I \geq 22.5\text{mA}$
故障低: $I \leq 3.6\text{mA}$

变送器安全保护

启动变送器安全保护功能可防止对变送器组态的修改, 包括本机零点和量程调整功能。调整内部的安全保护开关可启动保护功能。

功能指标

(零基量程, 参考条件, 316SST隔离膜片)

参考精度

$\pm 0.2\%$ 校验量程, 包括线性、迟滞性和重复性影响

环境温度影响(每100°F (56°C)影响)

$\pm (0.3\% \text{URL} + 0.3\% \text{量程})$, -40至185°F (-40至85°C)

稳定性

$\pm 0.10\% \text{URL}$, 12个月

时间响应

时间响应 时间常数小于200毫秒(阶跃压力变化输出达到63.2%的响应时间)

Zero point positive and negative shift

The zero point can shift between the barometric pressure and the upper limit of range (3051FG type) or between 0kPa and upper limit of range (3051FA type) and the check range is larger than or equal to the minimum range. The upper limit of the range shall not be larger than URL (upper limit of the range). 3051FG transmitter can not be checked with vacuum.

Overpressure limit

Range 1:826.8kPa
Others: 2URL

Temperature limit

Process: -4 to 284°F (-20 to 140°C)
Environment: -4 to 185°F (-20 to 85°C)
Storage: -22 to 185°F (-30 to 85°C)

When the process temperature is higher than 185°F (85°C), it is required that the reduction of the ambient temperature limit shall exceed 1/1.5 of the value.

$$\text{Maximum ambient temperature } (^{\circ}\text{F}) = 185 - \frac{(\text{process temperature} - 85^{\circ}\text{C})}{1.5}$$

$$\text{Maximum ambient temperature and humidity} = 185 - \frac{(\text{process temperature} - 85^{\circ}\text{C})}{1.5}$$

Temperature limit: 0~100% relative humidity

Volume change: smaller than 0.00042cm³

Start time: 2 seconds without preheating

Fault alarm

When the sensor or the microprocessor is self-diagnosed with fault, the transmitter will drive one high or low alarm signal to alarm the customer. The high or low alarm method is selected by the user by changing the jumper insertion technology. The alarm output value depends on the plant configuration method for the transmitter: standard operation or operation in line with NAMUR.

Standard operation

Linear output: $3.95 \leq I \leq 20.8$
Fault high: $I \geq 21.75\text{mA}$
Fault low: $I \leq 3.75\text{mA}$

Operation in line with NAMUR

Linear output: $3.85 \leq I \leq 20.5$
Fault high: $I \geq 22.5\text{mA}$
Fault low: $I \leq 3.6\text{mA}$

Safety protection of transmitter

The safety protection function of the transmitter can prevent the transmitter configuration from changing, including the zero point and range adjustment function for the machine. The adjustment of internal safety protection switch can start the protection function.

Function index

(zero base range, reference conditions, 316SST isolation diaphragm)

Reference accuracy

$\pm 0.2\%$ calibration range, including linearity, hysteresis and repeatability influence

Environmental temperature influence (influence of each 100°F (56°C))

$\pm (0.3\% \text{URL} + 0.3\% \text{range})$, -40 to 185°F (-40 to 85°C)

Stability

$\pm 0.10\% \text{URL}$, 12 months

Time response

Time constant smaller than 200 milliseconds (the response time for the step pressure change output to reach 63.2%)

振动影响

小于 $\pm 0.10\%$ URL, 振动测试条件: 峰-峰值4mm(5-15Hz)

加速度2g(15-150Hz), 及1g(150~2000Hz)

电源影响

小于 $\pm 0.01\%$ 校验量程/伏

安装位置影响

零点最多漂移0.3kPa, 可修正掉。无量程影响。

射频干扰(RFI)影响

$< \pm 0.25\%$ URL, 在20~100MHz, 30伏/米场强下, 引线在导线管内; $< \pm 0.25\%$ URL, 10伏/米场强下, 使用不带屏蔽的双绞线(无导线管)

机械性能指标

电气接口

1/2-14NPT, M20x1.5(CM20)或PG13.5导线管入口

过程连接件

隔离膜片: 316L不锈钢

过程接头: 316L不锈钢

非连接件

电子外壳: 低铜铝, NEMA 4X, IP65, IP67

喷涂: 聚氨酯

表盖O型环: 丁腈橡胶

重量: 约1.24公斤

Vibration influence

Smaller than $\pm 0.10\%$ URL, vibration test conditions: peak-peak value 4mm(5-15Hz)

Acceleration 2g(15-150Hz) and 1g(150~2000Hz)

Power supply influence

Acceleration 2g(15-150Hz) and 1g(150~2000Hz)

Installation position influence

Maximum drift of zero point is 0.3kPa and it can be corrected. No range influence.

Radio frequency interference (RFI) influence

$< \pm 0.25\%$ URL, under 20~100MHz, 30 volts/meter field strength, the leading wire is in the wire conduit; under $< \pm 0.25\%$ URL, 10 volts/meter field strength, use non-shielded twisted pair (without wire conduit)

Mechanical performance index

Electrical interface

1/2-14NPT, M20x1.5(CM20) or PG13.5 wire conduit entry

Process liquid connection part

Isolation diaphragm: 316L stainless steel

Process joint: 316L stainless steel

Non liquid connected part

Electronic shell: low copper aluminum, NEMA 4X, IP65, IP67

Spray: PU

Gauge cover O-ring: nitrile butadiene rubber

Weight: about 1.24 kilograms

3051F型订货信息表

3051F Type Order Information

型号 Model	产品描述 Product Description														
3051FA	卫生型绝压变送器 Hygiene absolute pressure transmitter														
3051FG	卫生型表压变送器 Hygiene gauge pressure transmitter														
代码 Code	量程 Range														
1	0-200kPa (0-2bar)		<table><tr><th>量程 Range</th><th>最小量程 (智能) Minimum range (intelligent)</th><th>UPL/最大量程 / 传感器上限 UPL/ maximum range / sensor cap</th></tr><tr><td>1</td><td>10.3kPa (103mbar)</td><td>200kPa (2.06bar)</td></tr><tr><td>2</td><td>51.7kPa (517mbar)</td><td>1034kPa (10.34bar)</td></tr><tr><td>3</td><td>276kPa (2.76bar)</td><td>2068kPa (20.68bar)</td></tr></table>	量程 Range	最小量程 (智能) Minimum range (intelligent)	UPL/最大量程 / 传感器上限 UPL/ maximum range / sensor cap	1	10.3kPa (103mbar)	200kPa (2.06bar)	2	51.7kPa (517mbar)	1034kPa (10.34bar)	3	276kPa (2.76bar)	2068kPa (20.68bar)
量程 Range	最小量程 (智能) Minimum range (intelligent)	UPL/最大量程 / 传感器上限 UPL/ maximum range / sensor cap													
1	10.3kPa (103mbar)	200kPa (2.06bar)													
2	51.7kPa (517mbar)	1034kPa (10.34bar)													
3	276kPa (2.76bar)	2068kPa (20.68bar)													
2	0-1030kPa (0-10.3bar)														
3	0-5515kPa (0-55.15bar)														
代码 Code	输出 Output														
S	4-20mA dc/HART 数字通讯 4-20mA dc/HART digital communication														
代码 Code	结构件材料 Material of structure part	隔离膜片 Isolation diaphragm													
	过程接口 Process interface														
2D	316SST	316SST													
代码 Code	过程接口 Process interface														
F	2英寸 Tri-clamp 接口 2-inch Tri-clamp interface														
代码 Code	导线管入口螺纹 Entry thread of wire conduit														
2	M20X1.5 (CM20)														
代码 Code	表头 (选项) Meter (optional)														
M5	液晶表头 Liquid crystal meter														
代码 Code	危险场所认证 Dangerous site certification														
E5	本安 Intrinsic safety I all CT4/CT6														
K5	隔爆 Explosion suppression dII CT4/CT6														
典型型号 : 30															
Typical mode: 30															
1FG 2 S 2D F 1															

校验

变送器由工厂按用户指定量程校验。如果不指定校验范围，则按变送器所选量程的最大测量范围校验。校验在环境温度和常压下进行。

Calibration

The transmitter shall be calibrated by the plant according to the amount designated by the user. When the calibration range is not specified, it shall be calibrated according to the maximum measurement range of the selected range. The calibration is conducted with ambient temperature and normal pressure.

TK3051P高温防腐型压力变送器

TK3051P High Temperature Anti-Corrosion Pressure Transmitter

概述

该型号是TK3051T型标准智能压力变送器的变形产品，在TK3051T的基础上加装密封隔离膜结构。过程连接方式为：螺纹旋入式，平型法兰式。延伸凸型法兰式及焊接螺纹式。法兰式隔离膜片可用多种合金材料和塑料涂层合金制作。加装温度隔离器或毛细管，可耐300℃介质。极大扩展了应用范围，适用于高温、强腐蚀和粘度大介质的测量，除温度影响指标与TK3051T型有所不同外，其它性能基本一致。

测量范围

TK3051P型

相对压力：

最大测量范围0~40MPa

最小测量范围0~4kPa

绝对压力：

最大测量范围0~4MPa

最小测量范围0~50kPa

负相对压力：

最大测量范围-0.1MPa~39.9MPa

最小测量范围-50kPa~0kPa

General

This model is the variant of TK3051T standard intelligent pressure transmitter, which has seal isolation diaphragm structure added on TK3051T. The process connection type is thread screw-in type, flat flange type, extended convex flange and welded thread type. The flange type isolation diaphragm can be made of multiple kinds of alloy material and plastic coated alloy. With temperature isolator or capillary, it is able to withstand 300°C medium. It expands greatly the application range and suitable for measurement of medium with high temperature, strong corrosion and large viscosity. Its performance is basically the same as TK3051T type except the temperature influence index.

Measurement range

TK3051P type

Relative pressure:

Maximum measurement range 0~40MPa

Minimum measurement range 0~4kPa

Absolute pressure:

Maximum measurement range 0~4MPa

Minimum measurement range 0~50kPa

Negative pressure:

Maximum measurement range -0.1MPa~39.9MPa

Minimum measurement range -50kPa~0kPa

TK3051P高温防腐型连接件数据

Data of TK3051P high temperature anti-corrosion connection parts

选型代码 Selection code	链接螺纹					密封隔离膜片					
	公称直径 G	公称压力 PN	直径 d1 mm	直径 d mm	直径 d2 mm	螺纹长度 X1 mm	外侧平面 间距 SW mm	膜片直径 dm mm	推荐最小 测量值 mm	高度 A mm	总质量 kg
AF	G1/4	40MPa	29	39	[sw41]	21	41	27	1	175	1.6
AG	G1 1/2A	40MPa	42	54.5	58	30	41	38	0.04	177	2.3
AR	G2A	40MPa	56	68	78	30	60	44	0.01	182	3.3

隔膜材料[一]

过程连接件螺纹部分不锈钢1Cr18Ni9Ti

[特殊要求可供不锈钢316L, 哈氏合金C276]

波纹膜片不锈钢316L

哈氏合金C276

Diaphragm material [I]

Partial stainless steel for threads of process connection parts

[stainless steel 316L, Hastelloy C276 can be provided for special requirements]

Corrugated diaphragm stainless steel 316L

Hastelloy C276

温度影响[一]

隔离膜片G1A

隔离膜片G11/2A

隔离膜片G2A

+1200Pa/10K

+600Pa/10K

+300Pa/10K

Temperature influence [I]

Isolation diaphragm G1A

Isolation diaphragm G11/2A

Isolation diaphragm G2A

+1200Pa/10K

+600Pa/10K

+300Pa/10K

过程连接[一]

外螺纹旋入式焊接密封隔膜结构连接

螺纹标准G1A, G11/2A, G2A PN40MPa

[特殊要求可供NPT标准]

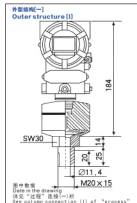
Process connection [I]

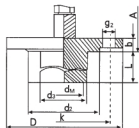
External thread screw-in welded seal

diaphragm structure connection

Thread standard G1A, G11/2A, G2A PN40MPa

[NPT standards can be provided for special requirements]





平法兰或延伸平法兰式焊接密封隔膜结构连接。
法兰标准 GB9123-88

[结构见上图数据见下表]

[特殊要求可供DIN、ANSI标准]

Flat flange or extended flat flange type welded seal
diaphragm structure connection
Flange standard GB9123-88

[see the drawing above for structure and see the following table for data.]

[standards DIN and ANSI can be provided for special requirements]

Data of TK3051P high temperature anti-corrosion connection parts

Number of 3051P type connection parts

选型代码					DK	AK	BK	CK	SU	NU	NU	PU		FC	FD	FM	FN	
	Selection code																	
法 兰 Flange	公称直径	DN			50	50	50	50	80	80	80	80		25	25	25	25	
	Nominal diameter																	
	公称压力	PN	MPa		1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/4		5/10	15	25	25	
	Nominal pressure																	
	直径 [D]	d1	mm	165	165	165	165	200	200	200	200	200		125	150	165	215	
	Pressure diameter																	
	厚度 [X]	b	mm	20	20	20	20	24	24	24	24	24		17.5	20	20	20	
	Thickness																	
	延伸长度	l	mm	—	50	100	200	—	50	100	200	—		—	—	—	—	
	Length of extended film																	
螺 孔 Thread	延伸高度	d3	mm	—	48.3	48.3	48.3	—	76.5	76.5	76.5	—		—	—	—	—	
	Straightness of extended film																	
	公称直径	l	mm	99	99	99	99	132	132	132	132	132		50.8	50.8	92.1	92.1	
	Diameter of boss																	
密封隔离 膜片 Sealing isolation diaphragm	孔数				4	4	4	4	8	8	8	8		4	4	8	8	
	Number of holes																	
	孔径	g2	mm	18	18	18	18	18	18	18	18	18	18		20	26	20	
	Hole diameter																	
	孔中心距	K	mm	125	125	125	125	150	160	160	160	160	160		89	101.5	127	165
膜片直径 Diaphragm diameter	Center distance of holes																	
	膜片直径	dm	mm	46	46	46	46	70	70	70	70	70		28	28	46	46	
	高度	A	mm	204	204	204	204	204	204	204	204	204	204		204	204	204	204
	总重量																	
Total weight	kg	3.72	4.48	8.11	3.72	6.23	6.23	6.23	4.48	4.48	4.48	4.48		2.9	5.45	11.4	16.9	

过程连接件：
平法兰，延伸平法兰部分，不锈钢
1Cr18Ni9Ti [特殊要求可供不锈钢316L]

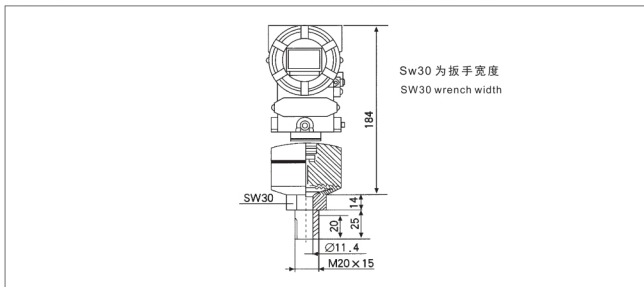
TK3051P型:
DN25 2kPa/10K; DN50 300Pa/10K
DN50 [包括延伸50mm、100mm、200mm] 300Pa/10K
DN80 [包括延伸50mm、100mm、200mm] 200Pa/10K

Process connection parts:
Flat flange, extended flat flange part, stainless steel
1Cr18Ni9Ti[stainless steel316L can be provided for
special requirements]

TK3051P type:
DN25 2kPa/10K;DN50 300Pa/10K
DN 50[including extension 50mm, 100mm,
200mm]300Pa/10K
DN 80[including extension 50mm, 100mm,
200mm]200Pa/10K

外形结构[三]

Outer structure [III]



过程连接[三]

焊接式外螺纹焊接密封隔膜结构连接
螺纹标准：外螺纹G1/2A内孔 $\phi 11.4$ mm
PN4MPa [特殊要求可供NPT标准]

Process connection [III]

Welded external thread welded seal diaphragm structure connection.
Thread standard: external thread G1/2A inner hole $\phi 11.4$ mm.
PN4MPa [NPT standard can be provided for special requirements]

隔膜材料[三]

过程连接件焊接螺纹部分：不锈钢
1Cr18Ni9Ti [特殊要求可供不锈钢316L、哈氏合金C-276]
隔离波纹膜片部分：不锈钢316L、哈氏合金C-276、钽、不锈钢316L带PTFE涂层。
隔离波纹膜片部分：不锈钢316L哈氏合金C276、钽及不锈钢316带PTFE涂层。

Diaphragm material [III]

Welded thread part of process connection parts: stainless steel
1Cr18Ni9Ti [stainless steel 316L and hastelloy C-276 can be provided for special requirements]
Isolation corrugated diaphragm part: stainless steel 316L, hastelloy C 276, tantalum, stainless steel 316L with PTFE coating

温度影响[三]

200Pa/10K

Temperature influence [III]

200Pa/10K

TK3051P高温防腐型压力变送器

TK3051P High Temperature Anti-Corrosion Pressure Transmitter

型号 Model	变送器类型 Transmitter Type	
R	标准型 Standard type	
G	本安型 iaII CT4/T6 Intrinsic safety type iaII CT4/T6	
D	隔爆型 dII CT4/T6 Explosion suppression type dII CT4/T6	
代号 Code	外壳、显示 Shell, display	
3	铝外壳, 电缆孔 W20×1.5 W20×1.5带数字显示器 Aluminum shell, cable hole, W20×1.5 W20×1.5 with	
4	铝外壳 电缆孔 W20×1.5 Aluminum shell, cable hole, W20×1.5	
9	约定的特殊要求 Stipulated special requirements	
代号 Code	传感器标准量程 (量程比 10:1) Standard range of sensor (range ratio 10:1)	最大过压 Maximum
	—表压传感器— Gauge pressure sensor	
1F	传感器 40kPa Sensor 40kPa	1MPa
1K	传感器 200kPa Sensor 200kPa	2MPa
1P	传感器 1MPa Sensor 1MPa	4MPa
1S	传感器 4MPa Sensor 4MPa	6MPa
1G	传感器 7MPa Sensor 7MPa	10MPa
1L	传感器 10MPa Sensor 10MPa	15MPa
1X	传感器 20MPa Sensor 20MPa	30MPa
1H	传感器 40MPa Sensor 40MPa	60MPa
	—绝压传感器— Gauge pressure sensor	
2F	传感器 40kPa Sensor 40kPa	1MPa
2K	传感器 200kPa Sensor	2MPa
2P	传感器 1MPa Sensor	4MPa
2S	传感器 4MPa Sensor	6MPa
代号 Code	标定、压力单位 Calibration, pressure unit	
2	0°标准量程, 标定 kPa/MPa 0°standard range, calibration kPa/MPa	
9	约定的特殊要求 Stipulated special requirements	
代号 Code	电子部件、通讯协议 Electronic part, communication protocol	
H	输出 4~20mA, HART协议 Output 4~20mA, HART protocol	
S	输出 4~20mA Output 4~20mA	
Y	约定的特殊要求 Stipulated special requirements	
代号 Code	隔膜中介液 Diaphragm medium liquid	
A	硅油 Silicon oil	
G	高沸点+温度隔离器 100mm High temperature oil + temperature isolator 100mm	
K	高沸点, 1m毛细管 High temperature oil, 1m capillary	
L	硅油, 1m毛细管 High temperature oil, 1m capillary	
Y	约定的特殊要求 Stipulated special requirements	
代号 Code	过程连接标准 Process connection standards	
AF	外螺纹 G1A, 推荐最小测量值 200KPa Outer thread G1A, recommended minimum measurement value 200KPa	
AG	外螺纹 G11/2A, 推荐最小测量值 40KPa Outer thread G11/2A, recommended minimum measurement value 40KPa	
AR	外螺纹 G2A, 推荐最小测量值 10KPa Outer thread G2A, recommended minimum measurement value 10KPa	
CA	焊接螺纹外螺纹 G1/2A内孔 φ11.4mm Welded thread outer thread G1/2A inner hole φ11.4mm	
DK	平法兰 GB9123-88 DN50, PN1MPa/4MPa Flat flange GB9123-88 DN50, PN1MPa/4MPa	
SU	平法兰 GB9123-88 DN80, PN1MPa/4MPa Flat flange GB9123-88 DN80, PN1MPa/4MPa	
AK	平法兰 GB9123-88 DN50, PN1MPa/4MPa, 延伸 50mm Flat flange GB9123-88 DN50, PN1MPa/4MPa, extend 50mm	
BK	平法兰 GB9123-88 DN50, PN1MPa/4MPa, 延伸 100mm Flat flange GB9123-88 DN50, PN1MPa/4MPa, extend 100mm	
OK	平法兰 GB9123-88 DN50, PN1MPa/4MPa, 延伸 200mm Flat flange GB9123-88 DN50, PN1MPa/4MPa, extend 200mm	
WU	平法兰 GB9123-88 DN50, PN1MPa/4MPa, 延伸 50mm Flat flange GB9123-88 DN50, PN1MPa/4MPa, extend 50mm	
NU	平法兰 GB9123-88 DN80, PN1MPa/4MPa, 延伸 100mm Flat flange GB9123-88 DN80, PN1MPa/4MPa, extend 100mm	
PU	平法兰 GB9123-88 DN80, PN1MPa/4MPa, 延伸 200mm Flat flange GB9123-88 DN80, PN1MPa/4MPa, extend 200mm	
YY	约定的特殊要求 Stipulated special requirements	
代号 Code	波紋膜片材料 Corrugated diaphragm material	
1	不锈钢 316L Stainless steel 316L	
2	哈氏合金 C276 Hastelloy C276	
5	钽 tantalum	
7	不锈钢 316L带PTFE涂层 Stainless steel 316L with PTFE painting	
9	约定的特殊要求 Stipulated special requirements	

TK3051P-R 3 1F 2 H A DK 1

安装附件

安装支架G

标准电缆密封套

外螺纹 M20×1.5T

隔爆电缆密封套

外螺纹 M20×1.5T2

用户选用附件, 请在选型代码后的括号内注明所要附件的代码。

Installation accessories

Installation frameG

Standard cable seal cartridge

External screw M20×1.5T

Explosion suppression cable seal cartridge

External screw M20×1.5T2

When the user chooses accessory, please indicate the code of the required accessory in the bracket after the selection code

TK208、TK316系列扩散硅变送器

TK208, TK316 series diffusion silicon transmitter



TK316压力变送器
TK316 pressure transducer



TK208压力变送器
TK208 pressure transducer

一、概述

TK208、TK316系列扩散硅变送器，选取进口高性能隔离式扩散硅传感器，采用国际上的先进制造工艺，具有同类进口变送器的坚固性和可靠性，适用于各种工业领域中腐蚀性介质的表压、绝压和负压的检测。

I. General

TK208 and TK316 series diffusion silicon transmitter uses imported high performance isolation diffusion silicon sensor and internationally advanced manufacturing process. It has the rigidity and reliability of similar imported transmitter and is applicable to detection of gauge pressure, absolute pressure and negative pressure of the corrosive medium in the industrial filed.

二、特点

性能价格比高
过程直接安装
温度特性好
综合精度高

II. Characteristics

High cost performance
Direct process installation
Good temperature characteristics
High overall accuracy

三、主要技术参数

电源：24VDC 输出4~20mA二线制
零位可调范围：±50%
量程调节比：3:1以上
量程范围：-100kPa~0~60MPa
负载特性：负载在0~600 Ω内(24VDC供电)维持恒流输出
显示：5位LCD，工程单位等
防爆型式：II CT4，本安型Ia II CT6
过压极限：2倍于上限压力
温度范围：过程：-20~60℃
精度等级：±0.2%，±0.5%
稳定性：±0.2%F·S
重量：约1kg
TK型扩散硅压力变送器选型表

III. Main technical parameters

Power supply: 24VDC output, 4-20mA two-wire system
Adjustable range of zero position: ±50%
Adjustment ration of the range: above 3: 1
Range scope: -100kPa~0~60MPa
Load characteristics: constant current output is maintained when the load in within 0~600 Ω (24VDC power supply)
Display: 5 LCD, engineering unit, etc.
Explosion suppression dIICT4, intrinsic safety iaIICT6
Overpressure limit: twice the upper limit pressure
Temperature range: process: -20~60℃
Accuracy class: ±0.1%, ±0.5%
Stability: ±0.2%F·S
Weight: about 1kg
TK Diffusion Silicon Pressure Transmitter Selection

TK型扩散硅压力变送器选型表

TK Diffusion Silicon Pressure Transmitter Selection

选型表
Selection table

型号Model	变送器类型 Transmitter type
TK208	压力变送器 Pressure transmitter
TK316	压力变送器 Pressure transmitter
代号Code	过程连接膜片及材料 Process connection diaphragm and material
1	不锈钢316L膜片/过程1Cr18Ni9Ti Stainless steel 316L diaphragm/process 1Cr18Ni9Ti
2	钽膜片/过程316L Tantalum diaphragm/process 316L
3	陶瓷膜片/过程316L Ceramic diaphragm/process 316L
代号Code	过程连接标准Process connection standard
R	外螺纹G1/2A Outer screw G1/2A 内孔 ϕ 8mm Inner hole ϕ 8mm
B	外螺纹M20 $\times$ 1.5 内孔 Outer screw M20 $\times$ 1.5 Inner hole
Y	约定的特殊要求 ϕ 8mm specified special requirements
代号Code	密封圈材料 Seal ring material
1F	氟橡胶 [低温限制-20℃] Fluoride rubber [low temperature limitation-20℃]
3F	氟硅橡胶 [低温限制-20℃] Fluorinated silicone rubber [low temperature limitation-20℃]
4F	EPDM [低温限制-40℃] EPDM [low temperature limitation-40℃]
9Y	Y约定的特殊要求 Special requirements of agreement
代号Code	信号输出 Signal output
2	模拟信号4-20mA二线 Analog signal 4-20mA two wire
9	约定的特殊要求 Stipulated special requirements
代号Code	外壳显示 Shell display
5	铝外壳, 电缆孔M20 $\times$ 1.5 Aluminum shell, cable hole M20 * 1.5
9	数字显示31/LCD取压压力值(BPS316不配) Digital display 31/ LCD, pressure value on site (BPS316 not provided)
N	无显示 No show
代号Code	精度等级 Accuracy class
3	0.20%
6	0.50%
代号Code	量程、压力单位 Range, pressure unit
G1G	表压 Gauge pressure
G2G	绝压 Absolute pressure
Y	负压 Negative pressure
代号Code	泵压专用 Special pump pressure
X	阻尼装置 Damping device
TK208 1 B 1F 5 6 G1G	

安装附件G
 标准电缆密封套
 外螺纹M20 $\times$ 1.5T
 防爆电缆密封套
 外螺纹M20 $\times$ 1.5T2
 用户选用附件, 请在选型代码后的括号内注明所要附件的代码。
 例: TK208 1 B 1F 5 6 G1G

Installation accessoriesG
 Installation frameG
 Standard cable seal cartridge
 Outer thread M20 $\times$ 1.5T
 Explosion proof cable seal cartridge
 Outer thread M20 $\times$ 1.5T2
 When the user selects the accessories, please indicate the code of the required accessories in the bracket after the selection code.
 E.g.: TK208 1 B 1F 5 6 G1G

TY-YB静压式/TK-HB导压式液位变送器

TK-YB Static Pressure Pressure /TK-HB Guiding Liquid Level Transmitter



TY-YB系列
TY-YBseries



TK-HB系列
TK-HBseries

一、TY-YB静压式液位变送器

静压式液位变送器采用德国SENSE压力传感器原装进口件生产，主要用于城市给排水、水处理厂、水库、河流、海洋、储油罐、及石油、化工、电力等部门仪表测量，被测介质可以是水、油、碱性液体。仪表精度高、质量稳定可靠，安装使用方便等优点，是一种过程检测控制系统中理想的液位仪表。

主要技术参数

测量范围：0.3~100m（由用户自选）
精度：0.1级、0.5级
工作温度：-20~80℃
输出信号：二线制4~20mADC
电源电压：24VDC， $\pm 1.0\%$ PS
负载能力：0.600Ω
相对温度： $\leq 85\%$
防护等级：IP68
防爆标志：ExiaII CT4~6

二、TK-HB导压式液位变送器

TK-HB导压式（静压）液位变送器是一种结构独特、实用性很强的液位仪表。它与传统的投入式液位计的最大不同点在于传感器不直接和介质接触。是通过导压管内空气将液位的高低变化，传到传感器上。这样就避免了传感器的堵塞，损害腐蚀，大大延长了仪表的使用寿命。因其独特的设计，使之特别适用于测量高温、高粘度、混浊、强腐蚀性液体。如重油、渣油、浆料、硫酸、污水等，是传统投入式液位变送器的理想替代产品，导压式液位变送器广泛应用于石化、钢铁、能源、食品、污水处理、制药、自来水等行业的敞口容器的液位测量。

导压式液位变送器应用：工业现场液位测量与控制、城市供水及污水处理、石油、化工、电厂、水文监测、水库、大坝、水电建设等领域的液位的测量与控制。

I. TY-YB Transmitter

Static pressure liquid transmitters are manufactured with original assemblies of German SENSE pressure sensors. It is mainly used for level measurement in urban water supply and drainage, water treatment plant, reservoir, river, ocean, oil tank, and departments like petroleum, chemical engineering and electric power. The medium being measured can be water, oil, and alkaline liquid. The instrument outputs two-wire system of 4~20mADC standard current signal. Being advanced in technology, high in accuracy, stable and reliable in quality and convenient to install and use, it is an ideal liquid level instrument in process detection and control system.

Main technical parameters

Measurement range: 0.3~100m(selected by user himself)
Working temperature: -20~80℃
Accuracy: 0.1, 0.5
Output signal: two-wire system 4~20mADC
Power supply voltage: 24VDC, $\pm 1.0\%$ PS
Load capacity: 0.600Ω
Relative temperature: $\leq 85\%$
Protection class: IP68
Explosion proof sign: ExiaII CT4~6

II. TK-HB air guide type liquid level transmitter

TK-HB air guide type liquid level transmitter TK-HB pressure (static pressure) liquid level transmitter is a liquid level instrument with unique structure, strong practicability. The biggest difference between it and the traditional input type liquid level gauge is that the sensor is not directly contact with the medium. The liquid level is changed by the air in the air guide pipe, and the air is transferred to the sensor. In this way, the blockage of the sensor is avoided, the corrosion is damaged, and the service life of the meter is prolonged. Because of its unique design, so that it is particularly applicable to the measurement of high temperature, high viscosity, turbidity, strong corrosive liquid. As of heavy oil and residual oil slurry and sulfuric acid, sewage and other, traditional investment type liquid level transmitter is an ideal substitute of guide type liquid level transmitter is widely used in petrochemical, steel, energy, food, sewage treatment, pharmaceutical, water and other industries of the exposure container liquid level measurement.

Guide pressure liquid level transmitter application: industrial field liquid level measurement and control, urban water supply and wastewater treatment, petroleum, chemical industry, power plants, hydrological monitoring, reservoirs, dams, hydropower construction and in the field of liquid level measurement and control.

TY-YB型静压式液位变送器选型表

Type selection table of TY-YB type static pressure type liquid level transmitter

选型表

Selection table

型 Model	变送器类型 Transmitter type
TY-YB	静压式 static pressure type
代号 Code	过程连接膜片及材料 Process connection diaphragm and material
1	不锈钢 316L膜片 / 过程 1Cr18Ni9Ti Stainless steel 316L diaphragm/process 1Cr18Ni9Ti
2	钽膜片 / 过程 316L Tantalum diaphragm/process 316L
9	陶瓷膜片 / 过程 316L Ceramic diaphragm/process 316L
代号 Code	过程连接标准 Process connection standard
R	支架 L型 frame L type
B	板状 plate installation
Y	约定的特殊要求 specified special requirements
代号 Code	密封材料 Seal material
1F	缆式 Cable type
3F	杆式 rod type
9Y	约定的特殊要求 specified special requirements
代号 Code	信号输出 Signal output
2	模拟信号 4~20mA 二线 Analog signal 4~20mA two wire
9	智能 HART 协议 Intelligent HART protocol
代号 Code	外壳显示 Shell display
5	铝外壳, 电缆孔 M20×1.5 Aluminum shell, cable hole M20 * 1.5
9	数字显示 31/2 LCD 现场压力值 Digital display 31/2LCD, pressure value on site
代号 Code	精度等级 Accuracy class
3	0.10%
6	0.50%
1	1.00%
代号 Code	防爆等级 Explosion proof class
1	d II CT4 隔离爆 II 类 C 级 T6 组 d II CT4 isolation explosion Category II Class C Group T6
2	ia II CT6 本安型 II 类 C 级 T4 区 ia II CT6 intrinsic safety Category II Class C Group T4
代号 Code	量程、压力单位 Range, pressure unit
A	KPa
B	mH2O
Y	其他 other

安装附件

安装支架

标准电缆密封套

外螺纹 M20×1.5

隔爆电缆密封套

外螺纹 M20×1.5

用户选用附件, 请在选型代码后的括号内注明所要附件

的代码。

订货时请注明:

量程 L=米

请注明缆长或杆长 H=米

法兰安装式: 请注明法兰规格

installation accessories

installation frame

standard cable sealing cartridge

outer thread M20×1.5

Explosion proof cable seal sleeve

outer thread M20×1.5

When the user selects the accessories, please indicate the code of

the required accessories in the bracket after the selection code.

Please note during order.

Range L= meter

Please indicate cable length or rod length H= meter

Flange installation type: please indicate the flange specification re

Guiding Liquid Level Transmitter

TK-HB型导压式液位变送器选型表

TK-HB type guide pressure liquid level transmitter selection table

选型表
Selection table

型号Model	变送器类型 Transmitter type
TK-HB	导压式 guide pressure type
代号Code	过程连接膜片及材料 Process connection diaphragm and material
1	不锈钢316L膜片/过程1Cr18Ni9Ti Stainless steel 316L diaphragm/process 1Cr18Ni9Ti
2	钽膜片/过程316L Tantalum diaphragm/process 316L
9	陶瓷膜片/过程316L Ceramic diaphragm/process 316L
代号Code	过程连接标准Process connection standard
R	支架 L型 frame L type
B	法兰（用户指定） Flange (User specified)
Y	约定的特殊要求 specified special requirements
代号Code	密封材料 Seal material
1F	钢缆式 Cable type
3F	杆式 rod type
4F	防腐PTFE(与介质接触部分) Corrosion protection PTFE (contact with the medium)
9Y	高温: $\leq 240^{\circ}\text{C}$
代号Code	信号输出 Signal output
2	模拟信号4-20mA二线 Analog signal 4-20mA two wire
9	智能HART协议 Intelligent HART protocol
代号Code	外壳显示 Shell display
5	铝外壳, 电缆孔M20×1.5 Aluminum shell, cable hole M20 * 1.5
9	数字显示31/2 LCD现场压力值Digital display 31/2LCD, pressure value on site
代号Code	精度等级 Accuracy class
3	0.10%
6	0.50%
代号Code	量程、压力单位 Range, pressure unit
A	Kpa
B	mH ₂ O
Y	其他other

安装附件
 安装支架
 标准电缆密封套
 外螺纹M20×1.5
 隔爆电缆密封套
 外螺纹M20×1.5
 用户选用附件, 请在选型代码后的括号内注明所要附件的代码。
 订货时请注明:
 量程L=米
 请注明缆长或杆长H=米
 法兰安装式: 请注明法兰规格

installation accessories
 installation frame
 standard cable sealing cartridge
 outer threadM20×1.5
 Explosion proof cable seal sleeve
 outer threadM20×1.5
 When the user selects the accessories, please indicate the code of the required accessories in the bracket after the selection code.
 Please note during order:
 Range L= meter
 Please indicate cable length or rod length H= meter
 Flange installation type: please indicate the flange specification re
 Guiding Liquid Level Transmitter

TK301一体化浓度/密度变送器

TK301 Integrated Concentration/Density Transmitter



产品简介

TK310智能浓度/密度变送器是一种用于连续在经理测量液体浓度和密度的仪表，可直接用于工业生产过程。

它的独创设计在于采用一个电容式差压传感器以及与其相连的、插入生产过程的一对压力中继器。在两个压力中继器之间有一个温度传感器，用以补偿过程液体的温度变化。一个专用软件利用特定的算法计算密度。

应用

制糖和酒精业奶制品业采矿食品加工制浆造纸业酿酒及饮料加工化工，石化，制药。

技术摘要

精度： $\pm 0.0004\text{g/cm}^3 (\pm 0.10\text{Brix})$
量程： $0.5\text{g/cm}^3 \sim 5\text{g/cm}^3$

电子线路图示

Product introduction

TK310 intelligent concentration/density transmitter is one instrument measuring continuously the liquid concentration and density and it can be used directly to the industrial production.

Its original design lies in one capacitance differential pressure sensor and one pressure relay connected with it and inserted into the production. There is one temperature sensor between two pressure relays to compensate for the temperature change of the process liquid. One special software uses particular algorithm to calculate the density.

Application

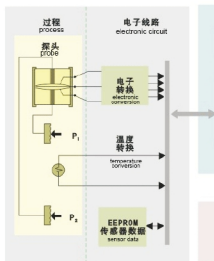
Sugaring, alcohol industry, dairy industry, mining, food processing, slurring, paper making, brewing, beverage processing, chemical engineering, petrochemical industry and pharmacy.

Technical summary

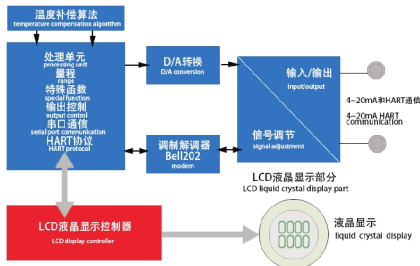
Accuracy： $\pm 0.0004\text{g/cm}^3 (\pm 0.10\text{Brix})$
Range： $0.5\text{g/cm}^3 \sim 5\text{g/cm}^3$

Electronic circuit diagram

传感器部分 Sensor part



主板部分 Motherboard part



选型代码

Selection code

工业型

TK301	工业型密度/浓度变送器 Industrial density/concentration transmitter										
代码 Code		量程 range		最小范围 minimum scope							
1		0.5-1.8g/cm³		0-0.025g/cm³							
2		1.0-2.5g/cm³		0-0.050g/cm³							
3		2.0-5.0g/cm³		0-0.250g/cm³							
代码 Code		触液部分材质 material for part contacting liquid									
H		哈氏合金C276 hastelloy C276									
I		316L不锈钢 316L stainless steel									
Z		其他-指定 others designated									
代码 Code		填充液 filling liquid									
N		Neobee-M20 Propylene Glycol (食品级) (food class)									
D		DC-704 硅油 DC-704 silicon oil									
S		DC200/20 硅油 DC200/20 silicon oil									
G		甘油和水 glycerin and water									
T		Syltherm 800									
Z		其他-指定 others designated									
代码 Code		液晶显示									
0		不带显示									
1		带显示									
代码 Code		电气接口									
O		1/2-14NPT									
A		M20×1.5									
B		Pg13.5DIN									
Z		其他-指定 others designated									
代码 Code		安装 installation									
0		顶 top									
1		侧 side									
代码 Code		过程连接尺寸、耐压等级和标准 process connection size, pressure rating and standard									
5		1		3" 150#ANSIB-16.5							
5		2		3" 150#ANSIB-16.5							
5		3		3" 150#ANSIB-16.5							
A		C		DN80PN25/40 IN2526-FORMD							
Z		Z		其他-指定 others designated							
代码 Code		其他选项 other options									
H1		316L不锈钢壳体 316L stainless steel shell									
Z2		其他-指定 others designated									
TK301	-	1	1	A	-	1	1	-	5	1 / -	基本选型示例

若无关选项，此栏不填。

no filling in this column when no relevant option

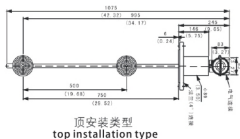
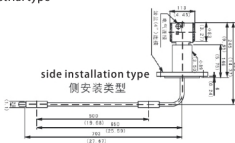
尺寸

Size

工业型

尺寸单位mm (英寸)

Industrial type



TK6800电动压差式液位变送器

TK6800 electric pressure differential liquid level transmitter

采用成熟的压差测量技术，通过特殊的结构设计使TK6800电动压差式液位变送器具有以下特点：

测量精度高、性能可靠、长期稳定性好，使用方便，广泛适用于电力、石油、化工、冶金、环保、建筑、食品等各行业生产过程的液位测量与控制。

通用性强：可满足不同温度、压力、介质的液位测量要求，并可应用于腐蚀、高温、高压、冲击等恶劣场合。

免维护：测量过程无可动部件，不存在机械部件损坏问题，无需维护。

准确可靠：测量量多样化，使测量更加准确，测量不受环境变化影响，稳定性高，使用寿命长。

多数应用场所可替代电动浮筒式或射频频导纳及雷达式液位变送器。

Mature pressure differential measurement technology is adopted. Special structural design is used so that the TK6800 electric pressure differential liquid level transmitter has following characteristics:

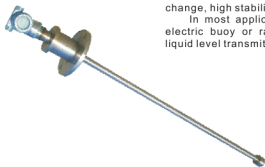
High measurement accuracy, reliable performance, good long term stability, convenient use, widely applicable to liquid level measurement and control in production in industries like electric power, petroleum, chemical engineering, metallurgy, environmental protection, architecture and food.

Highly general use: able to meet the measurement requirements of different temperature, pressure and medium and applicable to harsh conditions with corrosion, high temperature, high pressure and impact.

Maintenance-free: no movable part during measurement, no mechanical part damage, no need for maintenance

Accurate and reliable: diversified measurement, more accurate measurement, not affected by environmental change, high stability, long service life.

In most application cases, it is able to replace the electric buoy or radio frequency admittance and radar liquid level transmitter.



主要技术参数

测量范围：300~20000mm（更大量程可定做）

*精度：液位测量 $\pm 0.1\%$ FS

*量程比：10:1

*重复性： $\leq \pm 0.05\%$ FS

*电源：16~36VDC

*输出信号：模拟量4~20mADC（HART协议）

*液晶显示：mmH₂O, KPa, %

*最大负载电阻：24VDC供电时

*密度范围： $100 < \rho < 3000 \text{ Kg/m}^3$

*工作压力：2.5~16MPa

*介质温度： $-60^\circ\text{C} \sim 280^\circ\text{C}$

*环境温度： $-40^\circ\text{C} \sim 70^\circ\text{C}$

*工作条件影响：

供电影响：当电压在规定电压的最小值与最大值之间变化时，输出变化 $\leq \pm 0.02\%$ FS

温度影响： $\leq 0.05\%/10^\circ\text{C}$

*防护等级：IP67（NEMA 4X）

*防爆等级：本安型 Ex i I CT4-T6，隔爆型 Ex d I CT4-T6

*电气接口：1/2~14NPT内螺纹，M20×1.5内螺纹

*接线盒：铝合金

Main technical parameters:

Measurement scope: 300-20000mm(customized for larger range)

Accuracy: liquid level measurement $\pm 0.1\%$ FS

Range ratio: 10:1

Repeatability: $\leq \pm 0.05\%$ FS

Power supply: 16~36VDC

Output signal: analog 4~20mADC (HART protocol)

Liquid crystal display: mmH₂O, KPa, %

Maximum load resistor: when 24VDC power supply

Density range: $100 < \rho < 3000 \text{ Kg/m}^3$

Working pressure: 2.5~16MPa

Medium temperature: $-60^\circ\text{C} \sim 280^\circ\text{C}$

Ambient temperature: $-40^\circ\text{C} \sim 70^\circ\text{C}$

Influence of working conditions:

Power supply influence: when the voltage changes between the minimum value and the maximum value of the specified voltage, the output changes $\leq \pm 0.02\%$ FS

Temperature influence: $0.05\%/10^\circ\text{C}$

Protection class: IP67(NEMA 4X)

Explosion proof class: intrinsic safety type, explosion proof type.

Electric interface: 1/2-14NPT inner thread, M20×1.5

inner thread

Terminal box: aluminum alloy

TK6800电动差压式液位变送器型号规格
Model and specification of TK6800 electric differential

型号 Model	变送器类型 transmitter type
TK6800	电动压差式液位变送器 electric differential pressure liquid level transmitter
代号 Code	压力量程 pressure range
1	插入式 200~300mmH2O inserted type 200~300mmH2O
2	沉入式 1000~2000mmH2O immersion type 1000~2000mmH2O
3	汽包液位式 (选型材料另询) bubble level type (please inquire the selection material separately)
代号 Code	变送器类型 transmitter type
A	基本型 -40~80℃ basic type -40~80℃
B	高温型 -40~280℃ high temperature type -40~280℃
C	防腐型 -40~120℃ corrosion prevention type -40~120℃
代号 Code	安装方式 installation type
N	顶装式 top installation type
H	侧侧外装式 side side external installation type
C	侧底外装式 side bottom external installation type
D	汽包液位型 bubble level type
I	特殊型 (客户提供图纸) special type (drawing provided by the customer)
代号 Code	配套选择 accessory selection
X1	不带连通器 no communicating vessel
X2	配套连通器 (用户提供参数) supporting communicating vessel (parameter provided by the user)
代号 Code	输出信号 output signal
H	4~20mA HART
代号 Code	接液材质 liquid connection material
A	316L
B	316L+特氟龙 316L+Teflon
C	316L+聚四氟乙烯 316L+PTFE
代号 Code	安装法兰 installation flange
A	DN80
B	DN65
C	用户指定 customer designated
代号 Code	工作压力 working pressure
P1	≤6.3MPa
P2	≤16MPa
代号 Code	电气接口 electric interface
A	M20×1.5
B	1/2NPT
代号 Code	显示方式 display method
A	mmH2O
B	KPa
C	%
代号 Code	防爆等级
E5	本安 ia CT4/CT6 intrinsic safety ia CT4/CT6
K5	隔爆 d CT4/CT6 explosion isolation d CT4/CT6
	出厂量程 L=mm ex-work range L=mm
	探极长度 H=mm probe length H=mm
TK6800	1 B H X2 C A P1 A B E5

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