

PERFORMANCE
MADE
SMARTER

产品手册

5332

二线制可编程 RTD 变送器



温度 | 安全栅 | 通讯接口 | 多功能 | 隔离器 | 数显表

No. 5332V100-CN
自此序列号始: 181903001

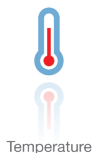
PR
electronics

6 大特色产品

满足您的一切需求

单品出色·组合无敌

凭借创新型专利技术·信号调节更加简单·智能·产品组合由六大产品类组成·具备多种模拟量和数字量模块·涵盖上千种工业自动化应用·所有产品都符合甚至高于行业的最高标准·这可确保产品即便在最恶劣的环境条件下仍能可靠运行·5 年产品保修期·让您使用更安心·



Temperature

温度变送器和温度传感器系列产品·提供从温度测量点到系统控制一站式信号解决方案·从而在最大程度上保证信号的完整性·仅需一套点对点解决方案·您就可以在任何环境中将工业过程中的温度信号转换为模拟量信号·总线信号或数字通讯信号·该方案具备响应时间短·自动校准·传感器故障检测·低漂移和卓越 EMC 性能等诸多优点·



I.S. Interface

我们采用最严格的安全标准来检验产品·以期提供最安全的信号·秉承创新精神·我们已经在 SIL 2 全面评估本质安全型接口方面取得了开创性成就·其既高效又经济·效果卓著·成效斐然·模拟量和数字量本质安全栅种类齐全·同时提供多种输入输出·这使得 PR 标准成为一项易于实施的现场检验标准·在大型项目安装过程中·新背板方案大大简化安装和布线·且能与标准 DCS 系统无缝集成·



Communication

我们提供经济实惠·使用方便·面向未来的通讯接口·以便您能够访问所安装的 PR 产品·所有接口均可拆卸·并带有屏幕和按钮·可以显示过程值/诊断值和对参数进行配置·产品特定功能包括通过 Modbus 和蓝牙进行通讯·以及使用我们的便携式设备主管 (PPS) 应用程序进行远程访问·可用于 iOS 和 Android·



Multifunction

单品为多功能系列产品·可涵盖大量现场应用·可轻而易举按照您的现场标准进行配置·此种单品可适用多种应用方式·既节省安装和培训时间·又大大简化库存备件管理·该设备专为长期信号精度高·功耗低·抗电噪声优异·编程简单而设计·



Isolation

基于微处理器技术研发的 6 mm 隔离器·小巧精致·响应迅速·品质一流·以极低的总拥有成本为专用应用提供卓越性能和抗电磁干扰·可水平或垂直安装·装置间无需间隙·



Display

数显表系列以其灵活性和稳定性著称·该设备系列几乎满足过程信号读数显示的所有需求·并具有通用的输入和供电能力·无论哪种行业·无论环境条件何其苛刻·该设备均能实时测量过程值并提供用户友好型界面和值得信赖的继电器信号·

二线制可编程 RTD 变送器 5332

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二线制可编程 RTD 变送器 5332

- RTD 或 Ohm 输入
- 精度: 优于 0,05% 所设量程
- 可设定传感器故障状态
- 标准 DIN B 型传感器头部安装

应用

- Pt100...Pt1000 或 Ni100...Ni1000 传感器线性化温度测量。
- 转换线性电阻阻值变化为标准模拟量电流信号·例如: 阀信号·或欧姆输出液位计。

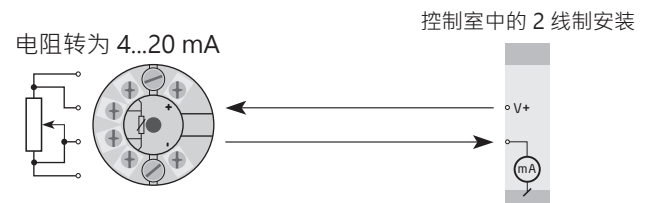
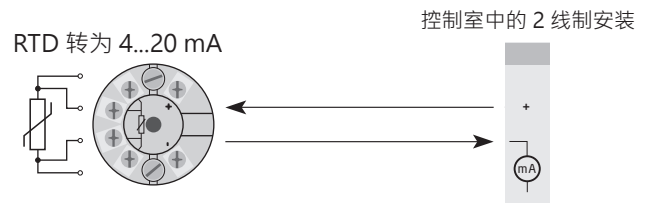
技术特点

- 用户在几秒钟内就可完成对 PR5332 的编程·从而在所有由规范定义的量程内测量温度。
- 专用可编程非隔离 4 线制 RTD 变送器。
- RTD 和电阻输入 具有用于 2-、3-、和 4-线制连接的电缆自动补偿。
- 持续监测重要的储存数据·以保障使用安全。

安装调试

- 标准 DIN B 型传感器头部安装。在非危险区域内·5332 可通过型号为 PR 8421 的配件安装在 DIN 导轨之上。

应用



订购

型号	版本
5332	简单便捷 · 无认证 : N
	一般用途 · 区域 2, ATEX, IECEx : A
	危险区 · 区域 0 / Div. 0, ATEX, IECEx, FM, CSA : D

附件

5909 = Loop Link USB 接口和 PReset 软件

电气规格

环境条件:

工作温度	-40°C 至 +85°C
标定温度	20...28°C
相对湿度	< 95% RH (无冷凝)
防护等级 (外壳/端子)	IP68 / IP00

机械规格:

结构尺寸	Ø 44 x 20.2 mm
重量	50 g
最大导线规格	1 x 1.5 mm ² 绞线
螺丝端子扭矩	0.4 Nm

常用规格:

电源电压 · DC	
5332N & 5332A	7.2...35 VDC
5332D	7.2...30 VDC
部功耗	
5332N & 5332A	25 mW...0.8 W
5332D	25 mW...0.7 W
电压降	7.2 VDC
预热时间	5 分钟。
编程	Loop Link
信噪比	> 最低 60 dB
响应时间 (可设定)	1...60 s
EEPROM 错误校验	< 3.5 s
信号动态范围 · 输入	20 位
信号动态范围 · 输出	16 位
电源电压变化的影响	< 0.005% 量程 / VDC

精度 · 一般值和基本值中较大的一个:

一般值		
输入类型	绝对精度	温度系数
所有	≤ ±0.05% 所设量程	≤ ±0.01% 所设量程/°C

基本值		
输入类型	基本精度	温度系数
RTD	≤ ±0.2°C	≤ ±0.01°C/°C
线性R	≤ ±0.1 Ω	≤ ±10 mΩ / °C

EMC – 电磁兼容对精度的影响	< ±0.5% 所设量程
扩展的 EMC 电磁兼容 :	
NAMUR NE 21, A criterion, burst.	< ±1% 所设量程

输入规格:

RTD 和线性电阻输入:

RTD 类型	最小值	最大值	最小量程	标准
Pt100...Pt1000	-200°C	+850°C	25°C	IEC 60751
Ni100...Ni1000	-60°C	+250°C	25°C	DIN 43760
线性电阻	0 Ω	5000 Ω	30 Ω	-----

最大偏移量	量程高值的 50%
电缆电阻 (单根导线; 最大)	5 Ω
传感器电流	额定0.2 mA
传感器电缆电阻对精度的影响 (3/4 线制)	< 0.002 Ω/Ω
传感器故障检测.	是

输出规格:

电流输出:

信号范围	4...20 mA
最小信号范围	16 mA
更新时间	440 ms
负载电阻	≤ (V _{电源} - 7.2) / 0.023 [Ω]
负载稳定性	< ±0.01% 所设量程 / 100 Ω

传感器故障检测:

可设定	3.5...23 mA
NAMUR NE43 上限	23 mA
NAMUR NE43 下限	3.5 mA

所设量程 = 当前设定的量程范围

符合标准:

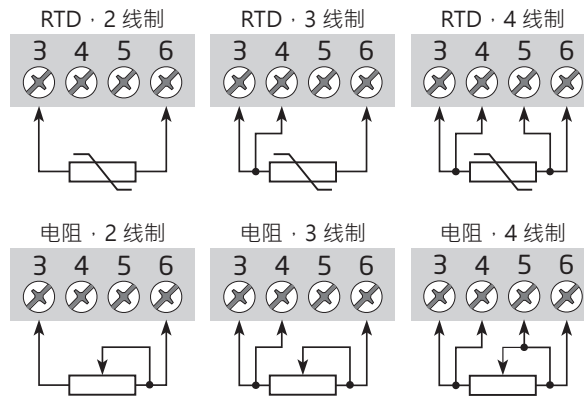
EMC	2014/30/EU
RoHS.	2011/65/EU
ATEX	2014/34/EU

Ex / I.S. 认证:

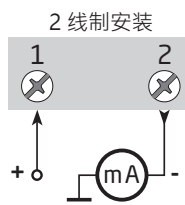
ATEX	
5332A	KEMA 10ATEX0002 X
5332D	KEMA 06ATEX0062
IECEx.	DEK 13.0035 X
FM	FM17US0013X
CSA.	1125003

连接

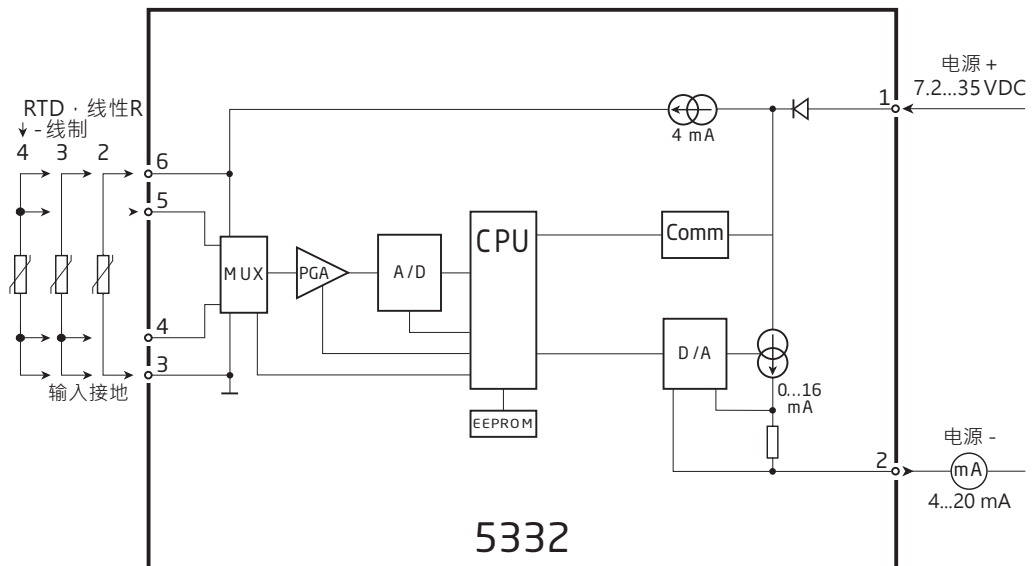
输入：



输出：



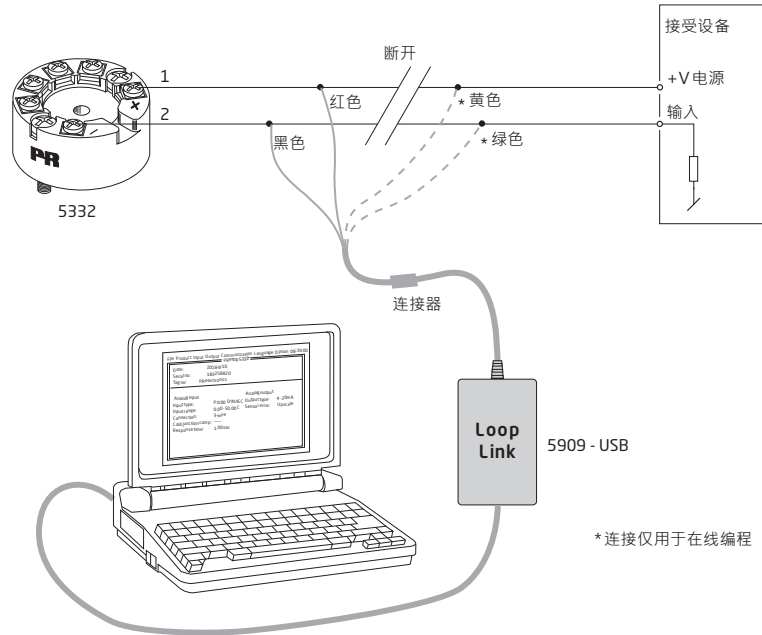
方框图



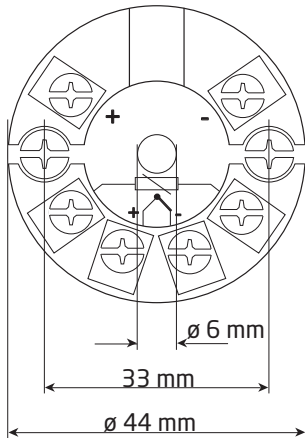
编程

- Loop Link 是 5332 编程所需的通信接口。
- 有关编程，请参考下图和 Preset 中的帮助功能。
- Loop link 不允许与安装在危险 (Ex) 区域中的模块进行通信。

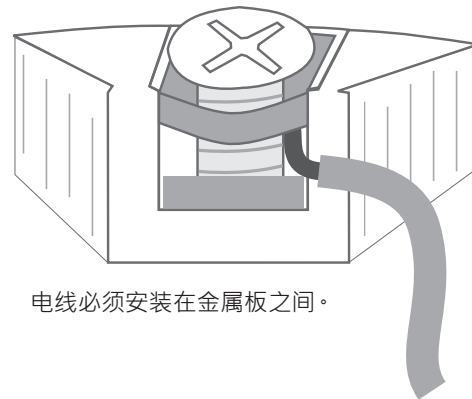
订购: Loop Link



机械规格



传感器电线的安装



ATEX 安装图

为安全安装 5332A，必须遵守以下规定。该模块仅由熟悉适用于该地区国家和国际法律、指令和标准的合格专业人员安装。
设备制造年份由序列号的前两位数字指示。

ATEX 认证

KEMA 10ATEX 0002X

标记牌



II 3 G Ex nA [ic] IIC T4 ... T6 Gc
II 3 G Ex ic IIC T4...T6 Gc
II 3 D Ex ic IIIC Dc

标准

EN 60079-0: 2012, EN 60079-11: 2012, EN 60079-15: 2010

T4: $-40 \leq Ta \leq 85^\circ\text{C}$ 端子: **3,4,5,6**
T6: $-40 \leq Ta \leq 60^\circ\text{C}$ Ex nA [ic]

端子: **1,2**
Ex nA

端子: **1,2**
Ex ic

Uo: 9.6 V
Io: 25 mA
Po: 60 mW
Lo: 33 mH
Co: 2.4 μF

Umax \leq 35 VDC

Ui = 35 VDC
Ii = 110 mA
Li = 10 μH
Ci = 1.0 nF

安全使用的特殊条件。

对于 Ex nA 防护类型，应将变送器安装于金属外壳内，从而根据 EN60529 提供至少为 IP54 的防护等级。

对于在存在可燃粉尘的环境下使用，应将变送器安装在根据 EN60529 防护等级至少为 IP6X 的外壳中，外壳外表面温度需比环境温度高出 20 K。

若环境温度 $\geq 60^\circ\text{C}$ ，则应使用耐热电缆，其额定耐热温度至少应比环境温度高出 20 K。

ATEX 安装图



为安全安装 5332D，必须遵守以下规定。该模块仅由熟悉适用于该地区国家和国际法律、指令和标准的合格专业人员安装。
设备制造年份由序列号的前两位数字指示。

ATEX 认证 KEMA 06ATEX 0062 X

标记牌



II 1 G Ex ia IIC T4...T6 Ga
II 1 D Ex ia IIIC Da
I 1 M Ex ia I Ma

标准

EN 60079-0: 2012, EN 60079-11: 2012, EN 60079-26: 2007,
EN 60079-15 :2010

危险区

区域 0, 1, 2, 20, 21, 22

T4: $-40 \leq Ta \leq 85^{\circ}C$

T6: $-40 \leq Ta \leq 60^{\circ}C$.

端子: **3,4,5,6**

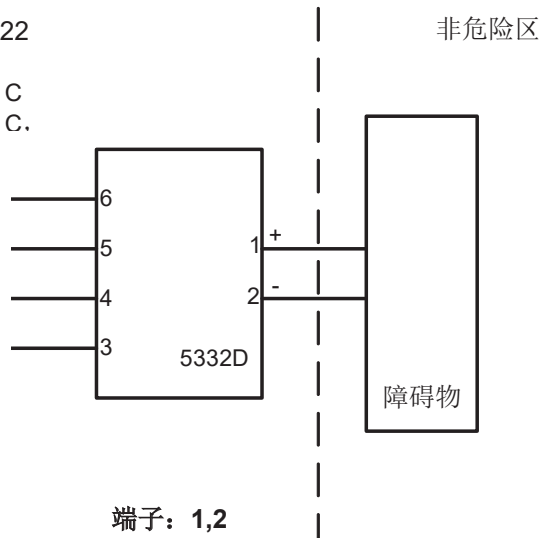
U_o: 9.6 VDC

I_o: 25 mA

P_o: 60 mW

L_o: 33 mH

C_o: 2.4 μF



端子: **1,2**

U_i: 30 VDC

I_i: 120 mA

P_i: 0.84 W

L_i: 10 μH

C_i: 1.0nF

安装说明。

在潜在易爆气体环境中，应将变送器安装于外壳内，从而根据 EN60529 提供至少为 IP20 的防护等级。

如果要在需使用 1G、1M 或 2M 类别设备的易爆环境中安装变送器且外壳为铝制材料，若必须在此种情况下进行安装工作，则应避免因冲击和摩擦火花而形成点火源。

若外壳由非金属材料制成，则应避免静电电荷。

对于在潜在易爆粉尘环境下进行安装工作，请遵循以下指导：

变送器应安装在符合 DIN43729 标准的 B 型金属外壳内，从而可根据 EN60529 提供至少为 IP6X 的防护等级，以适用于相关应用和正确安装。

应使用适用于相关应用和正确安装的电缆封口和堵封件。

若环境温度 $\geq 60^{\circ}\text{C}$ ，则应使用耐热电缆，其额定耐热温度至少应比环境温度高出 20 K。

粉尘层厚度在 5 mm 时，外壳表面温度等于环境温度加 20 K。

IECEX Installation drawing



For safe installation of 5332A the following must be observed. The module shall only be installed by qualified personnel who are familiar with the national and international laws, directives and standards that apply to this area.

Year of manufacture can be taken from the first two digits in the serial number.

Certificate	IECEX DEK 13.0035X
Marking	Ex nA [ic] IIC T4..T6 Gc Ex ic IIC T4..T6 Gc Ex ic IIIC Dc
Standards	IEC 60079-0 : 2011, IEC 60079-11 : 2011, IEC 60079-15 : 2010

T4: $-40 \leq T_a \leq 85^\circ\text{C}$	Terminal: 3,4,5,6	Terminal: 1,2	Terminal: 1,2
T6: $-40 \leq T_a \leq 60^\circ\text{C}$	Uo: 9.6 V	Ex nA	Ex ic
	Io: 25 mA		
	Po: 60 mW	Umax =35 VDC	Ui = 35 VDC
	Lo: 33 mH		Ii = 110mA
	Co: 2.4 μF		Li = 10 μH
			Ci = 1.0 nF

Installation note:

For installation in a potentially explosive gas atmosphere, the following instructions apply:
For nA installation the transmitter must be installed in an metal enclosure, e.g. a form B enclosure providing a degree of protection of at least IP54 according to IEC60529 or in an enclosure with type of protection Ex n or Ex e.

For ic installation the transmitter must be installed in enclosure providing a degree of protection of at least IP20 according to IEC60529 and that is suitable for the application.

Cable entry devices and blanking elements shall fulfill the same requirements.

For an ambient temperature $\geq 60^\circ\text{C}$, heat resistant cables shall be used with a rating of at least 20 K above the ambient temperature.

For installation in a potentially explosive dust atmosphere, the following instructions apply:
The surface temperature of the enclosure is equal to the ambient temperature plus 20 K, for a dust layer with a thickness up to 5 mm.
The transmitter must be mounted in a enclosure according to DIN 43729 that provides a degree of protection of at least IP6X according to IEC60529, and that is suitable for the application. Cable entry devices and blanking elements shall fulfill the same requirements.

IECEX Installation drawing



For safe installation of 5332D the following must be observed. The module shall only be installed by qualified personnel who are familiar with the national and international laws, directives and standards that apply to this area.
Year of manufacture can be taken from the first two digits in the serial number.

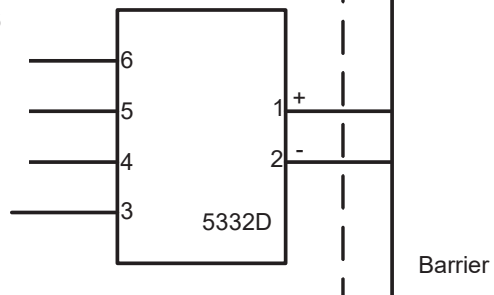
Certificate	IECEX DEK 13.0035X
Marking	Ex ia IIC T4...T6 Ga Ex ia IIIC Da Ex ia I Ma
Standards	IEC 60079-0 : 2011, IEC 60079-11 : 2011, IEC 60079-26:2006

Hazardous area
Zone 0, 1, 2, 20, 21, 22, M1

T4: $-40 \leq T_a \leq 85^\circ\text{C}$
T5: $-40 \leq T_a \leq 60^\circ\text{C}$
T6: $-40 \leq T_a \leq 45^\circ\text{C}$

Terminal: 3,4,5,6

U_o: 9.6 VDC
I_o: 25 mA
P_o: 60 mW
L_o: 33 mH
C_o: 2.4µF



Terminal: 1,2

U_i: 30 VDC
I_i: 120 mA
P_i: 0.84 W
L_i: 10µH
C_i: 1.0nF

Installation notes.

In a potentially explosive gas atmosphere, the transmitter shall be mounted in a metal form B enclosure in order to provide a degree of protection of at least IP20 according to IEC60529. If however the environment requires a higher degree of protection, this shall be taken into account.

If the transmitter is installed in an explosive atmosphere requiring the use of equipment protection level Ga, Ma and Mb, and if the enclosure is made of aluminum, it must be installed such, that ignition sources due to impact and friction sparks are excluded.

For installation in a potentially explosive dust atmosphere, the following instructions apply:

For explosive dust atmospheres, the surface temperature of the outer enclosure is 20 K above the ambient temperature.

The transmitter shall be mounted in a metal enclosure form B according to DIN43729 that is providing a degree of protection of at least IP6X according to IEC60529, that is suitable for the application and correctly installed.

Cable entries and blanking elements shall be used that are suitable for the application and correctly installed.

For an ambient temperature $\geq 60^{\circ}\text{C}$, heat resistant cables shall be used with a rating of at least 20 K above the ambient temperature.

FM Installation Drawing

Model 5331D, 5332D, 5333D and 5343B

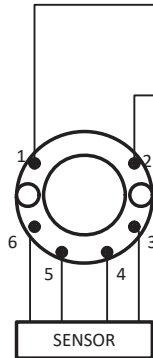
Hazardous (Classified) Location

Class I, Division 1, Groups, A, B, C, D T4..T6
Class I, Zone 0, AEx ia IIC T4..T6

Ambient temperature limits
T4: -40 to +85 deg. Celcius
T6: -40 to +60 deg. Celcius

Terminal 1, 2
Vmax or Ui: 30 V
Imax or Ii: 120 mA
Pmax or Pi: 0.84 W
Ci: 1 nF
Li: 10 uH

Terminal 3, 4, 5, 6
Vt or Uo: 9.6 V
It or Io: 28 mA
Pt or Po: 67.2 mW
Ca or Co: 3.5 uF
La or Lo: 35 mH



Non Hazardous Location

Associated Apparatus
or Barrier
with
entity Parameters:

$UM \leq 250V$
 $Voc \text{ or } Uo \leq Vmax \text{ or } Ui$
 $Isc \text{ or } Io \leq Imax \text{ or } Ii$
 $Po \leq Pi$
 $Ca \text{ or } Co \geq Ci + Ccable$
 $La \text{ or } Lo \geq Li + Lcable$

This device must not be connected
to any associated apparatus which
uses or generates more than 250
VRMS

Model 5335D, 5337D

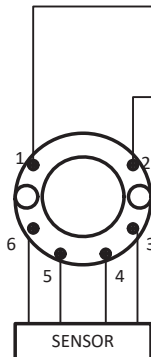
Hazardous (Classified) Location

Class I, Division 1, Groups, A, B, C, D T4..T6
Class I, Zone 0, AEx ia IIC T4..T6

Ambient temperature limits
T4: -40 to +85 deg. Celcius
T6: -40 to +60 deg. Celcius

Terminal 1, 2
Vmax or Ui: 30 V
Imax or Ii: 120 mA
Pmax or Pi: 0.84 W
Ci: 1 nF
Li: 10 uH

Terminal 3, 4, 5, 6
Vt or Uo: 9.6 V
It or Io: 28 mA
Pt or Po: 67.2 mW
Ca or Co: 3.5 uF
La or Lo: 35 mH



Non Hazardous Location

Associated Apparatus
or Barrier
with
entity Parameters:

$UM \leq 250V$
 $Voc \text{ or } Uo \leq Vmax \text{ or } Ui$
 $Isc \text{ or } Io \leq Imax \text{ or } Ii$
 $Po \leq Pi$
 $Ca \text{ or } Co \geq Ci + Ccable$
 $La \text{ or } Lo \geq Li + Lcable$

This device must not be connected
to any associated apparatus which
uses or generates more than 250
VRMS

The entity concept

The Transmitter must be installed according to National Electrical Code (ANSI-NFPA 70) and shall be installed with the enclosure, mounting, and spacing segregation requirement of the ultimate application.

Equipment that is FM-approved for intrinsic safety may be connected to barriers based on the ENTITY CONCEPT. This concept permits interconnection of approved transmitters, meters and other devices in combinations which have not been specifically examined by FM, provided that the agency's criteria are met. The combination is then intrinsically safe, if the entity concept is acceptable to the authority having jurisdiction over the installation.

The entity concept criteria are as follows:

The intrinsically safe devices, other than barriers, must not be a source of power.

The maximum voltage $U_i(V_{MAX})$ and current $I_i(I_{MAX})$, and maximum power $P_i(P_{max})$, which the device can receive and remain intrinsically safe, must be equal to or greater than the voltage (U_o or V_{OC} or V_t) and current (I_o or I_{SC} or I_t) and the power P_o which can be delivered by the barrier.

The sum of the maximum unprotected capacitance (C_i) for each intrinsically device and the interconnecting wiring must be less than the capacitance (C_a) which can be safely connected to the barrier.

The sum of the maximum unprotected inductance (L_i) for each intrinsically device and the interconnecting wiring must be less than the inductance (L_a) which can be safely connected to the barrier.

The entity parameters U_o, V_{OC} or V_t and I_o, I_{SC} or I_t , and C_a and L_a for barriers are provided by the barrier manufacturer.

NI Field Circuit Parameters

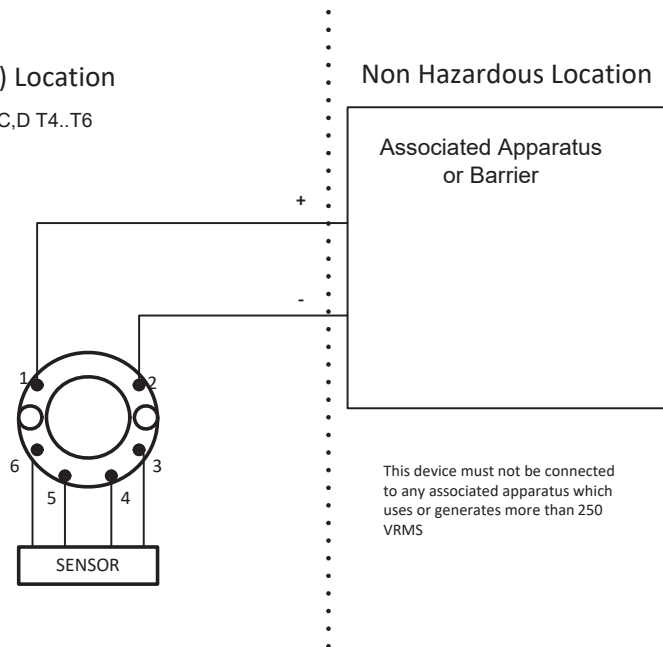
Model 5331D, 5332D, 5333D, 5335D, 5337D and 5343B

Hazardous (Classified) Location

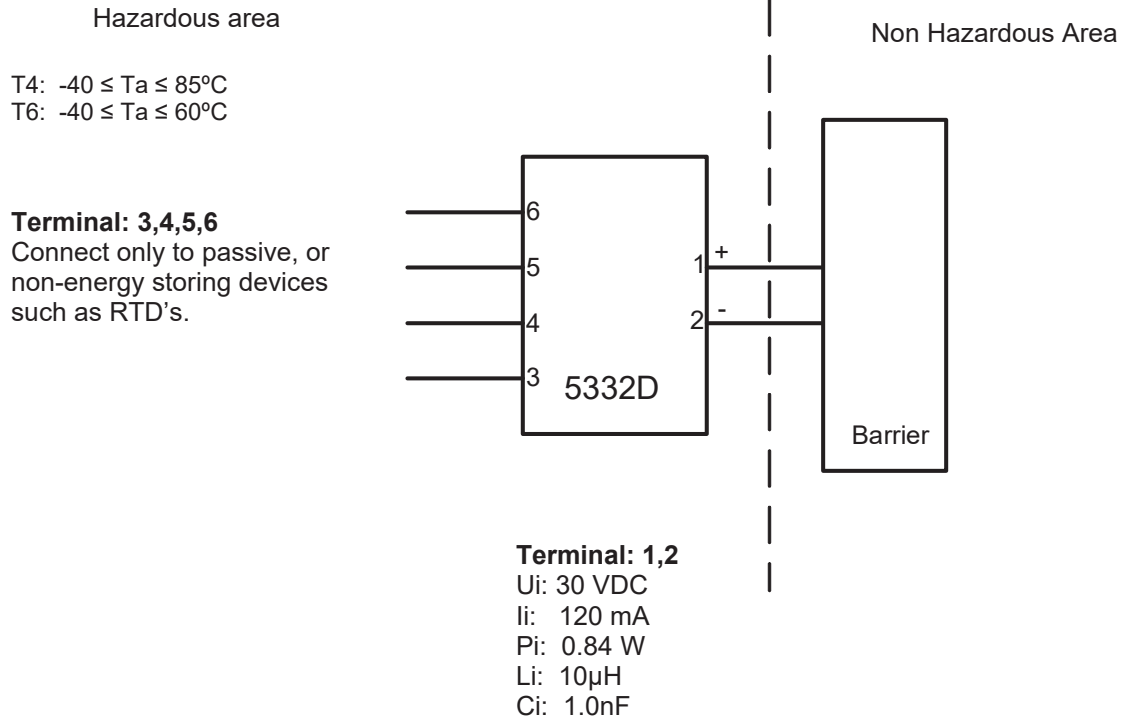
Class I, Division 2, Groups, A, B, C, D T4..T6
Class I, Zone 2, IIC T4..T6

Ambient temperature limits
T4: -40 to + 85 deg. Celcius
T6: -40 to + 60 deg. Celcius

Terminal 1 , 2
 $V_{max} : 35 V$
 $C_i : 1.0 nF$
 $L_i : 10 uH$



CSA Installation drawing 5332QC01



CLASS 2258 04 - PROCESS CONTROL EQUIPMENT - Intrinsically Safe Entity - For Hazardous Locations

Class I, Division 1, Groups A, B, C and D
Ex ia IIC, Ga

CLASS 2258 84 - PROCESS CONTROL EQUIPMENT - Intrinsically Safe Entity - For Hazardous Locations - Certified to US Standards

Class I, Division 1, Groups A, B, C and D
Class I, Zone 0, AEx ia IIC, Ga

Warning:

Substitution of components may impair intrinsic safety.

The transmitters must be installed in a suitable enclosure to meet installation codes stipulated in the Canadian Electrical Code (CEC) or for US the National Electrical Code (NEC).

文档更新记录

以下列表提供了有关本文档修订的说明。

版本号	日期	说明
100	1845	产品首发

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