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# 防爆合格证

证 号：GYJ23.1124X

制 造 商 恩德斯+豪斯公司

(地址：Obere Wank 1, 87484 Nesselwang, Germany)

产 品 名 称 温度变送器

型 号 规 格 TMT71/72, TMT82/84/85/86

防 爆 标 志 Ex ia [ia Ga] IIC T4...T6 Gb、Ex db IIC T4...T6 Gb、  
Ex tb IIIC T85°C...T110°C Db

产 品 标 准 /

图 样 编 号 10000004492

经图样及技术文件的审查和样品检验，确认上述产品符合下列标准：  
GB/T 3836.1-2021, GB/T 3836.2-2021, GB/T 3836.4-2021, GB/T 3836.31-2021  
特颁发此证。

本证书有效期：2023年06月25日至2028年06月24日

## 备注

1. 安全使用注意事项见本证书附件。
2. 证书编号后缀“X”表明产品具有安全使用特殊条件，内容见本证书附件。
3. 电气安全参数见本证书附件。
4. 本证书同时适用于恩德斯豪斯温度仪表（苏州）有限公司（地址：苏州工业园区江田里路31号）生产的同型号产品。



批 准

上海仪器仪表自控系统检验测试所有限公司  
国家级仪器仪表防爆安全监督检验站  
颁发日期二〇二三年六月二十五日

本证书仅对与认可文件和样品一致的产品有效。

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# EXPLOSION PROTECTION CERTIFICATE OF CONFORMITY

Cert No. GYJ23.1124X

<b>Manufacturer</b>	<b>Endress + Hauser Wetzer GmbH + Co. KG</b> (Address: Obere Wank 1, 87484 Nesselwang, Germany)
<b>Product</b>	<b>Temperature Transmitter</b>
<b>Model</b>	<b>TMT71/72, TMT82/84/85/86</b>
<b>Ex marking</b>	<b>Ex ia [ia Ga] IIC T4...T6 Gb, Ex db IIC T4...T6 Gb, Ex tb IIC T85°C...T110°C Db</b>
<b>Product standard</b>	/
<b>Drawing number</b>	<b>10000004492</b>

The product was found to comply with the following standard(s):

GB/T 3836.1-2021,GB/T 3836.2-2021,GB/T 3836.4-2021,GB/T 3836.31-2021

Valid until: 2028.06.24

**Remarks**

- 1.Conditions for safe use are specified in the attachment(s) to this certificate.
- 2.Symbol "X" placed after the certification number denotes specific conditions of use, which are specified in the attachment(s) to this certificate.
- 3.Safe parameters specified in the attachment(s) to this certificate.
- 4.This certificate is also applicable for the product with the same type manufactured by Endress+Hauser Wetzer (Suzhou) Co., Ltd. (address: No.31 JiangTianLiLu,Suzhou Industrial Park).



Approval

  
Shanghai Inspection and Testing Institute of  
Instruments and Automation Systems Co., Ltd.  
National Supervision and Inspection Center for  
Explosion Protection and Safety of Instrumentation  
Date of issue 2023.06.25

This Certificate is valid for products compatible with the documents and samples approved by NEPSI.

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(GYJ23.1124X)

(Attachment I)

**GYJ23.1124X防爆合格证附件 I**

由恩德斯+豪斯公司/恩德斯豪斯温度仪表（苏州）有限公司生产的TMT71/72、TMT82/84/85/86型温度变送器，经检验符合下列标准：

GB/T 3836.1-2021 爆炸性环境 第1部分：设备 通用要求

GB/T 3836.2-2021 爆炸性环境 第2部分：由隔爆外壳“d”保护的设备

GB/T 3836.4-2021 爆炸性环境 第4部分：由本质安全型“i”保护的设备

GB/T 3836.31-2021 爆炸性环境 第31部分：由防粉尘点燃外壳“t”保护的设备

产品防爆标志为Ex ia [ia Ga] IIC T4...T6 Gb、Ex db IIC T4...T6 Gb、Ex tb IIIC T85°C...T110°C Db，防爆合格证号GYJ23.1124X。

**一、产品安全使用特殊条件**

产品防爆合格证号后缀“X”表示产品有安全使用特殊要求，具体内容如下：

- 1、涉及隔爆接合面的维修须联系产品制造商。
- 2、产品型号、防爆型式、温度组别和使用环境温度范围的关系：

产品型号	装配接头/显示屏	防爆型式	温度组别	环境温度范围
TMT71, TMT72, TMT82, TMT84, TMT85, TMT86	有或没有 TID10 显示屏, 装配 TA30H 外壳	Ex db IIC/Ex tb IIIC	T6/ T85°C	-50°C ~ +65°C
			T5/ T100°C	-50°C ~ +80°C
			T4/ T105°C	-50°C ~ +85°C
	有或没有 TID10 显示屏, 装配 TA30H、TA30A、TA30D 外壳	Ex tb IIIC	T105°C	-50°C ~ +85°C

外壳提供外壳防护等级至少为 IP66/IP68。

产品型号	是否装配 TID10 显示屏	防爆型式	温度组别	环境温度范围
TMT82 带有现场安装外壳 (双腔)	是或否	Ex db IIC/Ex tb IIIC	T6/ T85°C	-40°C ~ +55°C
			T5/ T100°C	-40°C ~ +70°C
			T4/ T110°C	-40°C ~ +80°C
	是或否	Ex tb IIIC	T110°C	-40°C ~ +80°C
	否	Ex ia IIC	T6	-40°C ~ +58°C
	是		T6	-40°C ~ +55°C
	否		T5	-40°C ~ +75°C
	是		T5	-40°C ~ +70°C
是或否	T4		-40°C ~ +85°C	

外壳提供外壳防护等级至少为 IP66/IP67。





产品型号	装配接头/显示屏	防爆型式	温度组别	环境温度范围
TMT82	没有 TID10 显示屏, 装配 TA30H、TA30A、TA30D 安装外壳	Ex ia II C	T6	-52℃~+58℃
			T5	-52℃~+75℃
			T4	-52℃~+85℃
TMT84/ TMT85	没有 TID10 显示屏, 装配 TA30H、TA30A、TA30D 安装外壳	Ex ia II C	T6	-40℃~+55℃
			T5	-40℃~+70℃
			T4	-40℃~+85℃
TMT82/ TMT84/ TMT85	有 TID10 显示屏, 装配 TA30H、TA30A、TA30D 安装外壳	Ex ia II C	T6	-40℃~+55℃
			T5	-40℃~+70℃
			T4	-40℃~+85℃

外壳提供外壳防护等级至少为 IP66/IP68。

## 二、产品使用注意事项

### 1、产品型号、防爆标志和电气参数的关系:

防爆标志为 Ex db II C T4...T6 Gb、Ex tb IIIC T85℃...T110℃ Db 的变送器  
电源电路/输出电路参数:

型号	参数
TMT82	max.42VDC, 23mA
TMT84/TMT85	max.35VDC, 12mA
TMT71/TMT72	max.36VDC, 23mA
TMT86	max.30VDC, 0.7W

防爆标志为 Ex ia [ia Ga] II C T4...T6 Gb 的变送器

#### 1) TMT82

仅用于连接到经本质安全认证的电路时, 电源电路/输出电路最大参数:

$U_i=30V$ ;  $I_i=130mA$ ;  $P_i=800mW$ ;  $C_i=0nF$ ;  $L_i=0\mu H$

传感器电路:

$U_o=7.6V$ ;  $I_o=13mA$ ;  $P_o=24.7 mW$ ;  $C_i=0nF$ ;  $L_i=0\mu H$

参数	防爆型式		
	Ex ia II C	Ex ia II B	Ex ia II A
$C_o$	1 $\mu F$	4.5 $\mu F$	6.7 $\mu F$
$L_o$	10mH	50mH	50mH
装配现场安装外壳 (双腔)			
$C_o$	0.7 $\mu F$	4.1 $\mu F$	5.0 $\mu F$
$L_o$	0.5mH	20mH	50mH

传感器电路与电源电路和输出电路电气隔离, 峰值电压为 30V。

#### 2) TMT84/TMT85

仅用于连接到经本质安全认证的电路时, 电源电路/输出电路: Profibus PA (TMT84) 或 FF(TMT85):

$U_i=17.5V$ ;  $I_i=380mA$ ;  $C_i=5nF$ ;  $L_i=2.75\mu H$

或

$U_i=24V$ ;  $I_i=250mA$ ;  $C_i=5nF$ ;  $L_i=2.75\mu H$



或  
作为 FISCO 现场设备

传感器电路:

$U_o=7.2V$ ;  $I_o=25.9mA$ ;  $P_o=46.7 mW$ ;  $C_i=5nF$ ;  $L_i=0\mu H$

参数	防爆型式		
	Ex ia II C	Ex ia II B	Ex ia II A
$C_o$	0.97 $\mu F$	4.6 $\mu F$	6 $\mu F$
$L_o$	20mH	50mH	100mH

传感器电路与电源电路和输出电路电气隔离, 峰值电压为 30V。

2、产品电缆引入口 ( $1/2$ NPT或M20 $\times$ 1.5) 应配用经防爆检验认可的、符合 GB/T 3836.1-2021和GB/T 3836.2-2021的规定、且防爆等级为Ex db II C Gb的电缆引入装置或封堵件; 选用的电缆引入装置和封堵件应与产品的使用条件相适应。

3、产品在现场使用维护时必须遵守“断电源后开盖”的原则。

4、用户不得自行随意更换该产品的电气零部件, 应会同产品制造商共同解决运行中出现的故障, 以免影响防爆性能和损坏现象的发生。

5、产品的安装、使用和维护应同时遵守产品使用说明书、GB/T 3836.13-2021“爆炸性环境 第13部分: 设备的修理、检修、修复和改造”、GB/T3836.15-2017“爆炸性环境 第15部分: 电气装置的设计、选型和安装”、GB/T3836.16-2022“爆炸性环境 第16部分: 电气装置的检查和维护”、GB/T 3836.18-2017“爆炸性环境 第18部分: 本质安全电气系统”、GB50257-2014“电气装置安装工程爆炸和火灾危险环境 电气装置施工及验收规范”及GB15577-2018“粉尘防爆安全规程”的有关规定。

### 三、制造厂责任

1、产品制造厂必须将上述产品安全使用特殊条件和使用注意事项纳入该产品使用说明书。

2、制造厂必须严格按照NEPSI认可的文件资料生产。

上海仪器仪表自控系统检验测试所有限公司  
国家级仪器仪表防爆安全监督检验站  
二〇二三年六月二十五日





(GYJ23.1124X)

(Attachment I )

**Attachment I to GYJ23.1124X**

**1. Description**

Temperature transmitter typed TMT71/72 and TMT82/84/85/86, manufactured by Endress+Hauser Wetzler GmbH + Co.KG/ Endress+Hauser Wetzler (Suzhou) Co., Ltd., accords with following standards:

GB/T3836.1-2021 Explosive atmospheres-Part 1: Equipment-General requirements

GB/T3836.2-2021 Explosive atmospheres-Part 2: Equipment protection by flameproof enclosure“d”

GB/T3836.4-2021 Explosive atmospheres-Part 4: Equipment protection by intrinsic safety“i”

GB/T3836.31-2021 Explosive atmospheres-Part 31: Equipment dust ignition protection by enclosure“t”

The Ex marking is Ex ia [ja Ga] II C T4...T6 Gb、 Ex db II C T4...T6 Gb、 Ex tb III C T85°C...T110°C Db, its certificate number is GYJ23.1124X.

**2. Special Conditions for Safe Use**

The suffix “X” placed after the certificate number indicates that this product is subject to special conditions for safe use, that is:

2.1 For information on the dimensions of the flameproof joints contact the manufacturer.

2.2 The relationship between transmitter version,Ex marking,temperature class and ambient temperature range are as follows:

Transmitter version		Temperature class/code	Ambient temperature range
Ex db II C/Ex tb III C	TMT71,TMT72,TMT82,TMT84,TMT85 and TMT86 with or without TID10,with field housing type TA30H	T6/ T85°C	-50°C ~ +65°C
		T5/ T100°C	-50°C ~ +80°C
		T4/ T105°C	-50°C ~ +85°C
Ex tb III C	TMT71,TMT72,TMT82,TMT84,TMT85 and TMT86 with or without TID10,with field housing type TA30H,TA30A,TA30D	T105°C	-50°C ~ +85°C

The enclosures provide a degree of protection of at least IP66/IP68.

Transmitter version with field mount housing (dual compartment)		Temperature class/code	Ambient temperature range
Ex db II C/ Ex tb III C	TMT82 with or without display TID10	T6/ T85°C	-40°C ~ +55°C
		T5/ T100°C	-40°C ~ +70°C
		T4/ T110°C	-40°C ~ +80°C



Ex tb III C	TMT82 with or without display TID10	T110°C	-40°C ~ +80°C
Ex ia II C	TMT82 without display TID10	T6	-40°C ~ +58°C
	TMT82 with display TID10	T6	-40°C ~ +55°C
	TMT82 without display TID10	T5	-40°C ~ +75°C
	TMT82 with display TID10	T5	-40°C ~ +70°C
	TMT82 with or without display TID10	T4	-40°C ~ +85°C

The enclosures provide a degree of protection of at least IP66/IP67.

Transmitter version with field housing, type TA30A, TA30D, TA30H		Temperature class/code	Ambient temperature range
Ex ia II C	TMT82 without display TID10	T6	-52°C ~ +58°C
		T5	-52°C ~ +75°C
		T4	-52°C ~ +85°C
Ex ia II C	TMT84 and TMT85 without display TID10	T6	-40°C ~ +55°C
		T5	-40°C ~ +70°C
		T4	-40°C ~ +85°C
Ex ia II C	TMT82, TMT84, TMT85 with display TID10	T6	-40°C ~ +55°C
		T5	-40°C ~ +70°C
		T4	-40°C ~ +85°C

The enclosures provide a degree of protection of at least IP66/IP68.

### 3. Conditions for Safe Use

3.1 The relationship between transmitter version, Ex marking and electrical data is shown as follows:

Transmitters in type of protection Ex db II C T4...T6 Gb、 Ex tb IIIC T85°C...T110°C Db

Supply and output circuit: max.42VDC,23mA(TMT82)  
max.35VDC,12mA(TMT84/TMT85)  
max.36VDC,23mA(TMT71/TMT72)  
max.30VDC,0.7W(TMT86)

Transmitters in type of protection Ex ia [ja Ga] II C T4...T6 Gb

#### 3.1.1 TMT82

Supply and output circuit:

In type of protection intrinsic safety Ex ia IIC, only for connection to a certified intrinsically safe circuit, with the following maximum values:

$U_i=30V$ ;  $I_i=130mA$ ;  $P_i=800mW$ ;  $C_i=0nF$ ;  $L_i=0\mu H$

Sensor circuit:

In type of protection intrinsic safety Ex ia IIC, with the following maximum values:



Uo=7.6V; Io=13mA; Po=24.7 mW; Ci=0nF; Li=0μH

	Ex ia II C	Ex ia II B	Ex ia II A
Co	1μF	4.5μF	6.7μF
Lo	10mH	50mH	50mH

And instead, with field mount housing (dual compartment);

	Ex ia II C	Ex ia II B	Ex ia II A
Co	0.7μF	4.1μF	5.0μF
Lo	0.5mH	20mH	50mH

The sensor circuit is galvanically isolated from the supply and output circuit up to a peak voltage of 30 V.

### 3.1.2 TMT84/TMT85

Supply and output circuit Profibus PA (TMT84) or Foundation Fieldbus (TMT85):

in type of protection intrinsic safety Ex ia IIC, only for connection to a certified intrinsically safe circuit, with the following maximum values:

Ui=17.5V; Ii=380mA; Ci=5nF; Li=2.75μH

or

Ui=24V; Ii=250mA; Ci=5nF; Li=2.75μH

or

as a FISCO field device

Sensor circuit:

in type of protection intrinsic safety Ex ia IIC, with the following maximum values:

Uo=7.2V; Io=25.9mA; Po=46.7 mW; Ci=5nF; Li=0μH

	Ex ia II C	Ex ia II B	Ex ia II A
Co	0.97μF	4.6μF	6μF
Lo	20mH	50mH	100mH

The sensor circuit is galvanically isolated from the supply and output circuit up to a peak voltage of 30 V.

3.2 Suitable certified cable glands or blanking plugs for unused holes (1/2 NPT or M20\*1.5) approved by ExTL according to GB/T 3836.1-2021 and GB/T 3836.2-2021 with Ex marking "Ex db II C Gb" shall be used and correctly installed. The cable glands and blanking plugs to be used shall suitable for the product working conditions.

3.3 Any maintenance shall be performed only when the warning of "Do not open when energized" is observed.

3.4 The user shall not change the configuration in order to maintain/ensure the explosion protection performance of the equipment. Any change may impair safety.

3.5 For installation, use and maintenance of this product, the end user shall observe the instruction manual and the following standards:

GB/T 3836.13-2021 "Explosive atmospheres- Part 13:Equipment repair,overhaul,reclamation and modification".



GB/T 3836.15-2017 "Explosive atmospheres- Part 15:Electrical installations design, selection and erection".

GB/T 3836.16-2022 "Explosive atmospheres- Part 16:Electrical installations inspection and maintenance".

GB/T 3836.18-2017 "Explosive atmospheres- Part 18:Intrinsically safe electrical systems".

GB50257-2014 "Code for construction and acceptance of electric equipment on fire and device for explosion hazard electrical installation engineering".

GB15577-2018 "Safety regulations for dust explosion prevention and protection".

#### 4. Manufacturer's Responsibility

4.1 Conditions for safe use and special conditions for safe use, as specified above, should be included in the documentation the user is provided with.

4.2 Manufacturing should be done according to the documentation approved by NEPSI.

Shanghai Inspection and Testing Institute of  
Instruments and Automation Systems Co., Ltd.  
National Supervision and Inspection Center for  
Explosion Protection and Safety of Instrumentation

2023.06.25