



防爆合格证

证 号: GYJ22.1908X

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 TMT 162-**a b c d e f g h i j k l m n**

防 爆 标 志 Ex ia II C T4...T6 Ga, Ex ia III C T85°C...T110°C Db

产 品 标 准 /

图 样 编 号 10000007847

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 3836.4-2021

特颁发此证。

本证书有效期: 2022 年 07 月 19 日 至 2027 年 07 月 18 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. 型号规格说明见本证书附件。
4. 本安电气参数见本证书附件。
5. 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。
6. [更改 I] 增加防爆标志和电气参数。2024 年 5 月 29 日签发。

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 二 年 七 月 十 九 日

本证书仅对与认可文件和样品一致的产品有效。



EXPLOSION PROTECTION

CERTIFICATE OF CONFORMITY

Cert No. GYJ22.1908X

Manufacturer	Endress + Hauser Wetzer GmbH + Co. KG (Address: Obere Wank 1, 87484 Nesselwang, Germany)
Product	Temperature Transmitter
Model	TMT 162- a b c d e f g h i j k l m n
Ex marking	Ex ia IIC T4...T6 Ga, Ex ia IIIC T85°C...T110°C Db
Product standard	/
Drawing number	10000007847

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

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

Valid until: 2027.07.18

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. Model designation is specified in the attachment(s) to this certificate.
4. Intrinsic safety parameters specified in the attachment(s) to this certificate.
5. 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).
6. [Variation I] Add Ex marking and electrical parameters. issued on 2024.05.29.

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 2022.07.19

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



(GYJ22.1908X)

(Attachment II)

GYJ22.1908X 防爆合格证附件 II

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TMT 162-**a b c d e f g h i j k l m n**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 3836.4-2021 爆炸性环境 第4部分：由本质安全型“i”保护的的设备

产品防爆标志 Ex ia IIC T4...T6 Ga, Ex ia IIIC T85°C...T110°C Db, 防爆合格证号 GYJ22.1908X。

本证书认可的产品型号规格如下：

TMT 162-**a b c d e f g h i j k l m n**

a代表认证，可为1：NEPSI认证 Ex ia IIC T4...T6 Ga, Ex ia IIIC T85°C...T110°C Db；

b代表外壳，可为1：铝，不带显示，

2：铝，带显示，背光，

3：不锈钢，不带显示，

4：不锈钢，带显示，背光，

5：T17，不锈钢，不带显示，

6：T17，不锈钢，带显示，背光，

9：1~4类型的组合+绝缘清漆；

c代表电缆引入，可为A, B, C, D, E, 1, 2, 3, 4, 5, 6, 7, 与防爆性能无关；

d代表安装支架，可为1, 2, 3, 9, 与防爆性能无关；

e代表连接设定，可为A：工厂设定 Pt100 3-接线，0~100°C，

1：热电偶TC，

2：RTD 2-接线，

3：RTD 3-接线，

4：RTD 4-接线；

f代表配置传感器类型，可为A, B, C, D, E, F, G, H, I, J, K, L, M, N, P, Q, R, S, T, V, Y, 1, 2, 3, 4, 5, 6, 7, 8, 9, 与防爆性能无关；

g代表通信设定，可为A：HART，工厂设定 Pt100 3-接线，0-100°C，NAMUR NE43，

B：HART，测量范围，见附件说明，NAMUR NE43，

C：HART，TC设定范围，见附件说明，NAMUR NE43，

D：HART，RTD设定范围，见附件说明，NAMUR NE43，

E：PROFIBUS PA，见附件说明，

F：PROFIBUS PA，工厂设定，

K：FOUNDATION Fieldbus，工厂设定，

L: FOUNDATION Fieldbus, 见附加说明;

h代表附加选型, 可为A, B, C, D, K, L, M, N, S, Y, 与防爆性能无关;

i代表传感器, 可为A, B, C, D, E, 与防爆性能无关;

j代表附加认证, 可为LA, 与防爆性能无关;

k代表附件安装, 可为: NA, NC, O9, 与防爆性能无关;

l代表客户特殊修改, 可为WA, WB, 与防爆性能无关;

m代表固件版本, 可为: 73, 75, 76, 78, 与防爆性能无关;

n代表标识, 可为ZA, ZB, ZC, ZD, Z1, Z2, Z3, Z4, Z5, Z6, Z9, 与防爆性能无关。

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、当产品安装于要求EPL Ga级的场所时, 用户须采取有效措施防止产品外壳由于冲击或摩擦引起的点燃危险。

2、产品使用环境温度和温度组别的关系:

4~20mA输出:

温度组别		T6/T85℃	T5/T100℃	T4/T110℃
环境温度	EPL Gb	-50℃~+55℃	-50℃~+70℃	-50℃~+85℃
	EPL Ga	-50℃~+40℃	-50℃~+50℃	-50℃~+60℃
	EPL Db	-40℃~+55℃	-40℃~+70℃	-40℃~+85℃

PA/FF输出

温度组别		T6/T85℃	T5/T100℃	T4/T110℃
使用环境温度范围	EPL Ga	-40℃~+55℃	-40℃~+70℃	-40℃~+85℃
	EPL Db	-40℃~+55℃	-40℃~+70℃	-40℃~+85℃

二、产品使用注意事项

1、产品必须与已通过防爆认证的关联设备配套共同组成本安防爆系统方可使用于爆炸性气体环境。其系统接线必须同时遵守本产品 and 所配关联设备的使用说明书要求, 接线端子不得接错。

2、产品(端子+、-)的本安输入参数如下:

	最高输入电压	最大输入电流	最大输入功率	最大内部参数	
	Ui (V)	Ii (mA)	Pi(W)	Ci(nF)	Li(μH)
4~20mA	30	300	1	5	0
PA/FF	24	250	1.2	5	10
	17.5*	500*	5.32*	5*	10*

注：带*的这组参数满足FISCO总线设备的要求。

3、产品传感器电路（端子1~6）的本安输出参数如下：

4~20mA : $U_o=7.6V$ $I_o=13mA$ $P_o=24.7mW$

PA/FF : $U_o=8.6V$ $I_o=26.9mA$ $P_o=57.6mW$

	外部允许参数	Ex ia IIC	Ex ia IIB	Ex ia IIA
4~20mA	$C_o=$	10.4 μF	160 μF	1000 μF
	$L_o=$	40mH	150mH	300mH
PA/FF	$C_o=$	6.2 μF	55 μF	1000 μF
	$L_o=$	48 mH	180 mH	380 mH

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/T 3836.15-2017“爆炸性环境 第15部分：电气装置的设计、选型和安装”、GB/T 3836.16-2022“爆炸性环境 第16部分：电气装置的检查与维护”、GB/T 3836.18-2017 “爆炸性环境 第18部分：本质安全电气系统”、GB50257-2014“电气设备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GB 15577-2018 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
二〇二四年五月二十九日

注：本附件替代原防爆合格证附件 I



(GYJ22.1908X)

(Attachment II)

Attachment II to GYJ22.1908X

1. Description

TMT162-**a b c d e f g h i j k l m n** Temperature transmitter, manufactured by Endress+Hauser Wetzler GmbH + Co.KG/Endress+Hauser Wetzler(Suzhou) Co.,Ltd., accords with following standards:

GB/T 3836.1-2021 Explosive atmospheres-Part 1: Equipment-General requirements

GB/T 3836.4-2021 Explosive atmospheres-Part 4: Equipment protection by intrinsic safety “i”

The Ex marking is Ex ia II C T4...T6 Ga,Ex ia IIIC T85℃...T110℃ Db, its certificate number is GYJ22.1908X.

Type approved in this certificate is shown as the following:

TMT162-**a b c d e f g h i j k l m n**

a Approval: 1=NEPSI approval Ex ia II C T4...T6 Ga,Ex ia IIIC T85℃...T110℃ Db;

b Housing:1=Alu, w/o display,

2= Alu + display, illum,

3= 316L, w/o display,

4= 316L + display, illum,

5= T17, 316L, w/o display,

6= T17, 316L, display illum,

9= Combination of 1 to 4 + Non-conductive varnish;

c Cable Entry: A,B,C,D,E,1,2,3,4,5,6,7,not relevant for Explosion Safety;;

d Mounting Bracket: 1,2,3,9,not relevant for Explosion Safety;

e Configuration Connection:A= Factory setup Pt100 3-wire 0~100℃,

1= Thermocouple TC,

2= RTD 2-wire,

3= RTD 3-wire,

4= RTD 4-wire;

f Configuration Sensor Type: A,B,C,D,E,F,G,H,I,J,K,L,M,N,P,Q,R,S,T,U,V,Y,1,2,3,4,5,6,7,8,9, not relevant for Explosion Safety;

g Communication Configuration :A=HART, Factory setup Pt100 3-wire 0~100℃, NAMUR NE43,

B= HART,Measuring range, see additional spec, NAMUR NE43,

C= HART, TC config. range, see questionnaire, NAMUR NE43,

D= HART, RTD config. range, see questionnaire, NAMUR NE43,

E= PROFIBUS PA, see additional spec,

F= PROFIBUS PA, Factory setup,

K= FOUNDATION Fieldbus, Factory setup,

L= FOUNDATION Fieldbus, see additional specification;

h Additional Option: A,B,C,D,K,L,M,N,S,Y ,not relevant for Explosion Safety;

i Sensor: A,B,C,D,E,not relevant for Explosion Safety;

j Additional Approval:LA,not relevant for Explosion Safety;

k Accessory Mounted:NA,NC,O9,not relevant for Explosion Safety;

l Customer Specific Modifications: WA,WB, not relevant for Explosion Safety;

m Firmware Version: 73, 75, 76, 78 not relevant for Explosion Safety;

n Marking: ZA,ZB,ZC,,ZD,Z1,Z2,Z3,Z4,Z5,Z6,Z9,not relevant for Explosion Safety;

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:

2.1When the intrinsic safety product being used in EPL Ga, the user must take effective measures to prevent the risk of ignition of the product enclosure due to impact or friction.

2.2 The relationship between ambient temperature range and the temperature class is shown as follows:

4~20mA output:

Temperature class		T6/T85℃	T5/T100℃	T4/T110℃
Ambient temperature range	EPL Gb	-50℃~+55℃	-50℃~+70℃	-50℃~+85℃
	EPL Ga	-50℃~+40℃	-50℃~+50℃	-50℃~+60℃
	EPL Db	-40℃~+55℃	-40℃~+70℃	-40℃~+85℃

PA/FF output:

Temperature class		T6/T85℃	T5/T100℃	T4/T110℃
Ambient temperature range	EPL Ga	-40℃~+55℃	-40℃~+70℃	-40℃~+85℃
	EPL Db	-40℃~+55℃	-40℃~+70℃	-40℃~+85℃

3. Conditions for Safe Use

3.1 This product should be used in explosive gas atmospheres together with approved associated apparatus, follow the instruction manual of this product and associated apparatus when connecting the wiring. Connect the wiring terminals correctly.

3.2 Intrinsically safe input parameters (terminal +, -):

	Ui (V)	Ii (mA)	Pi (W)	Ci (nF)	Li (μH)
4~20mA	30	300	1	5	0

PA/FF	24	250	1.2	5	10
	17.5*	500*	5.32*	5*	10*

Note: parameters with symbol “*” meet the requirements of FISCO device.

3.3 Intrinsically safe output parameters of sensor circuits (terminal 1...6):

4~20mA : $U_o=7.6V$ $I_o=13mA$ $P_o=24.7mW$

PA/FF : $U_o=8.6V$ $I_o=26.9mA$ $P_o=57.6mW$

		Ex ia II C	Ex ia II B	Ex ia II A
4~20mA	Co=	10.4 μ F	160 μ F	1000 μ F
	Lo=	40mH	150mH	300mH
PA/FF	Co=	6.2 μ F	55 μ F	1000 μ F
	Lo=	48 mH	180 mH	380 mH

3.4 Connecting cable between intrinsically safe product and associated apparatus should be insulated screen cable; connect the cable screen functionally to earth ground.

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

3.6 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

2024.05.29

Note: This annex replaces the original explosion-proof certificate Annex I