

防爆合格证

证号: GYJ21.3358X

由 恩德斯豪斯公司

制造的产品:

(地址: Hauptstrasse 1, D-79689 Maulburg, Germany)

名称 储罐雷达液位计

型号规格 NMR81/84 系列

防爆标志 Ex d [ia Ga] II C T* Gb Ex ia/d II C T* Ga/Gb

产品标准 /

图样编号 960017741、960017754

经图样及技术文件的审查和样品检验, 确认上述产品符合 GB 3836.1-2010, GB 3836.2-2010, GB 3836.4-2010, GB 3836.20-2010 标准,

特颁发此证。

本证书有效期: 2021年11月02日至2026年11月01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. 电气安全参数见本证书附件。
 5. 本证书同时适用于恩德斯豪斯(苏州)自动化仪表有限公司(地址: 苏州工业园区苏虹中路491号)生产的同型号产品。

站长

国家级仪器仪表防爆安全监督检验站

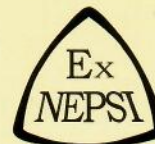
颁发日期二〇二一年十一月二日

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.GYJ21.3358X

This is to certify that the product

Tank Gauge Radar

manufactured by Endress+Hauser SE+Co. KG

(Address:Hauptstrasse 1, D-79689 Maulburg, Germany)

which model is NMR81/84 Series

Ex marking Ex d [ia Ga]IIC T* Gb Ex ia/dIIC T* Ga/Gb

product standard /

drawing number 960017741, 960017754

has been inspected and certified by NEPSI, and that it conforms to GB 3836.1-2010,GB 3836.2-2010,GB 3836.4-2010,GB 3836.20-2010.

This Approval shall remain in force until 2026.11.01

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 to this certificate.
- 3.Model designation is specified in the attachment(s) to this certificate.
- 4.Safe 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 (Suzhou) Automation Instrumentation Co., Ltd. (address: Su Hong Zhong Lu No.491, Suzhou-SIP, China)

Director

**National Supervision and Inspection Centre for
Explosion Protection and Safety of Instrumentation**

Issued Date 2021.11.02

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

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国家级仪器仪表防爆安全监督检验站

National Supervision and Inspection Centre for
Explosion Protection and Safety of Instrumentation

(GYJ21.3358X)

(Attachment I)

GYJ21.3358X防爆合格证附件 I

由恩德斯豪斯公司生产的NMR81/84系列储罐雷达液位计，经国家级仪器仪表防爆安全监督检验站(NEPSI)检验，符合下列标准：

GB3836.1-2010 爆炸性环境 第1部分：设备 通用要求

GB3836.2-2010 爆炸性环境 第2部分：由隔爆外壳“d”保护的的设备

GB3836.4-2010 爆炸性环境 第4部分：由本质安全型“i”保护的的设备

GB3836.20-2010 爆炸性环境 第20部分：设备保护级别（EPL）为Ga级的设备

产品防爆标志为Ex d [ia Ga] II C T* Gb、Ex ia/d II C T* Ga/Gb，防爆合格证号为GYJ21.3358X。

本证书认可的产品具体型号规格如下：

NMR81-**aa b c dd ee ff gg h ii jj kkk III** +(options)

其中：**aa** 表示认证代码，可为NC、NE；

b 表示端子类型，可为1、2或9；

c 表示供电电压，可为B、D、E或Y；

dd 表示初级输出，可为A1、B1、C1、E1、H1或Y9；

ee 表示次级模拟I/O，可为A1、A2、B1、B2、C2、X0或Y9；

ff 表示次级数字I/O Ex d，可为A1、A2、A3、B1、B2、B3、C1、C2、C3、E1、E2、E3、X0或Y9；

gg 表示外壳，可为AC、BC或Y9；

h 表示电缆引入规格，可为A、B、E、F或Y；

ii 表示天线型式，可为AB、AC、AD或YY；

jj 表示过程密封件，可为A1、B1、B2、B3或YY；

kkk 表示过程连接（与安全性能无关）；

III 表示精度/重量/计量认证（与安全性能无关）；

options: 与安全性能无关。

具体含义详见产品规格说明书。

NMR84-**aa b c dd ee ff gg h ii jj kkk lll** +(options)

其中：**aa** 表示认证代码，可为NC；

b 表示端子类型，可为1、2或9；

c 表示供电电压，可为B、D、E或Y；

dd 表示初级输出，可为A1、B1、C1、E1、H1或Y9；

ee 表示次级模拟I/O，可为A1、A2、B1、B2、C2、X0或Y9；

ff 表示次级数字I/O Ex d，可为A1、A2、A3、B1、B2、B3、C1、C2、C3、E1、E2、E3、X0或Y9；

gg 表示外壳，可为AC、BC或Y9；

h 表示电缆引入规格，可为A、B、E、F或Y；

ii 表示天线型式，可为BD、BF、BG、BH、BJ或YY；

jj 表示过程密封件，可为A1、B1、B2或YY；

kkk 表示过程连接（与安全性能无关）；

lll 表示精度/重量/计量认证（与安全性能无关）；

options: 与安全性能无关。

具体含义详见产品规格说明书。

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，其内容如下：

- 1、涉及隔爆接合面的维修须联系产品制造商。
- 2、产品使用环境温度范围见产品随带安全文件XA01581G。
- 3、非导电涂层的天线表面应严禁摩擦、干擦清洗和安装在强介质流中，以防产生静电火花危险。
- 4、当环境温度>50℃时，应采用耐热≥85℃的连接电缆。
- 5、产品的非金属标签、非导电涂层和金属吊牌应采取适当措施，以防产生静电火花危险。

二、产品使用注意事项

- 1、产品外壳设有接地端子，用户在安装使用时应可靠接地。
- 2、产品型号与电子插件配置、温度组别、使用环境温度和介质温度的关系如下：

电子插件配置					
	1	2	3	4	5
	(worst case)	(best case)			
Enclosure (Alu)	×	×	×	×	×
Slot A - IOM_D	×		×	×	×
Slot B - IOM_D	×				
Slot B - IOM_A(Ex ia)			×		×
Slot C - IOM_A(Ex ia)	×				

Slot D - IOM_D	×				×
PS_LV_DC	×	×	×	×	×
MB	×	×	×	×	×
ExLi	×	×	×	×	×

NMR81 (铝制外壳的E波段雷达):

温度组别	最高环境温度/°C	最高介质温度时的最高允许环境温度/°C	最高介质温度 /°C
配置1			
T6	55	51	85
T5	55	46	100
T4	55	50	135
T3,T2,T1	55	47	200
配置2			
T6	60	51	85
T5	60	46	100
T4	60	58	135
T3,T2,T1	60	54	200
配置3			
T6	58	51	85
T5	58	46	100
T4	58	54	135
T3,T2,T1	58	51	200
配置4			
T6	60	51	85
T5	60	46	100
T4	60	56	135
T3,T2,T1	60	53	200
配置5			
T6	55	51	85
T5	55	46	100
T4	55	52	135
T3,T2,T1	55	49	200

NMR81 (不锈钢外壳的E波段雷达):

温度组别	最高环境温度/°C	最高介质温度时的最高允许环境温度/°C	最高介质温度 /°C
配置1			
T6	43	40	85
T5	43	37	100
T4	43	37	135
T3,T2,T1	43	32	200
配置2			
T6	55	46	85
T5	55	38	100
T4	55	52	135
T3,T2,T1	55	46	200
配置3			
T6	50	45	85
T5	50	38	100

T4	50	45	135
T3,T2,T1	50	40	200
配置4			
T6	53	46	85
T5	53	38	100
T4	53	46	135
T3,T2,T1	53	43	200
配置5			
T6	45	44	85
T5	45	38	100
T4	45	40	135
T3,T2,T1	45	36	200

NMR84 (铝制外壳的 C 波段雷达):

温度组别	最高环境温度/°C	最高介质温度时的最高允许环境温度/°C	最高介质温度 /°C
配置1			
T6	55	52	85
T5	55	52	100
T4	55	49	135
T3,T2,T1	55	49	150
配置2			
T6	60	60	85
T5	60	59	100
T4	60	56	135
T3,T2,T1	60	56	150
配置3			
T6	58	55	85
T5	58	55	100
T4	58	53	135
T3,T2,T1	58	53	150
配置4			
T6	60	57	85
T5	60	57	100
T4	60	54	135
T3,T2,T1	60	54	150
配置5			
T6	55	55	85
T5	55	54	100
T4	55	51	135
T3,T2,T1	55	51	150

NMR84 (不锈钢外壳的C波段雷达):

温度组别	最高环境温度/°C	最高介质温度时的最高允许环境温度/°C	最高介质温度 /°C
配置1			
T6	43	39	85
T5	43	39	100
T4	43	36	135
T3,T2,T1	43	36	150

配置2			
T6	55	55	85
T5	55	54	100
T4	55	51	135
T3,T2,T1	55	51	150
配置3			
T6	50	47	85
T5	50	47	100
T4	50	44	135
T3,T2,T1	50	44	150
配置4			
T6	53	50	85
T5	53	50	100
T4	53	46	135
T3,T2,T1	53	46	150
配置5			
T6	45	43	85
T5	45	43	100
T4	45	39	135
T3,T2,T1	45	39	150

3、产品隔爆腔的电缆引入口须配用经防爆检验认可、符合GB 3836.1-2010和GB 3836.2-2010标准、防爆等级为Ex d IIC 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。

4、产品电气参数：

85V~264V AC或52V~75V AC或19~64V DC。

5、产品隔爆腔在现场使用和维护时必须遵守“断电源后开盖”的原则。

6、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。

7、产品的安装、使用和维护应同时遵守产品使用说明书、GB 3836.13-2013“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 3836.16-2017“爆炸性环境 第16部分：电气装置的检查与维护”及GB 50257-2014“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”的有关规定。

三、制造厂责任

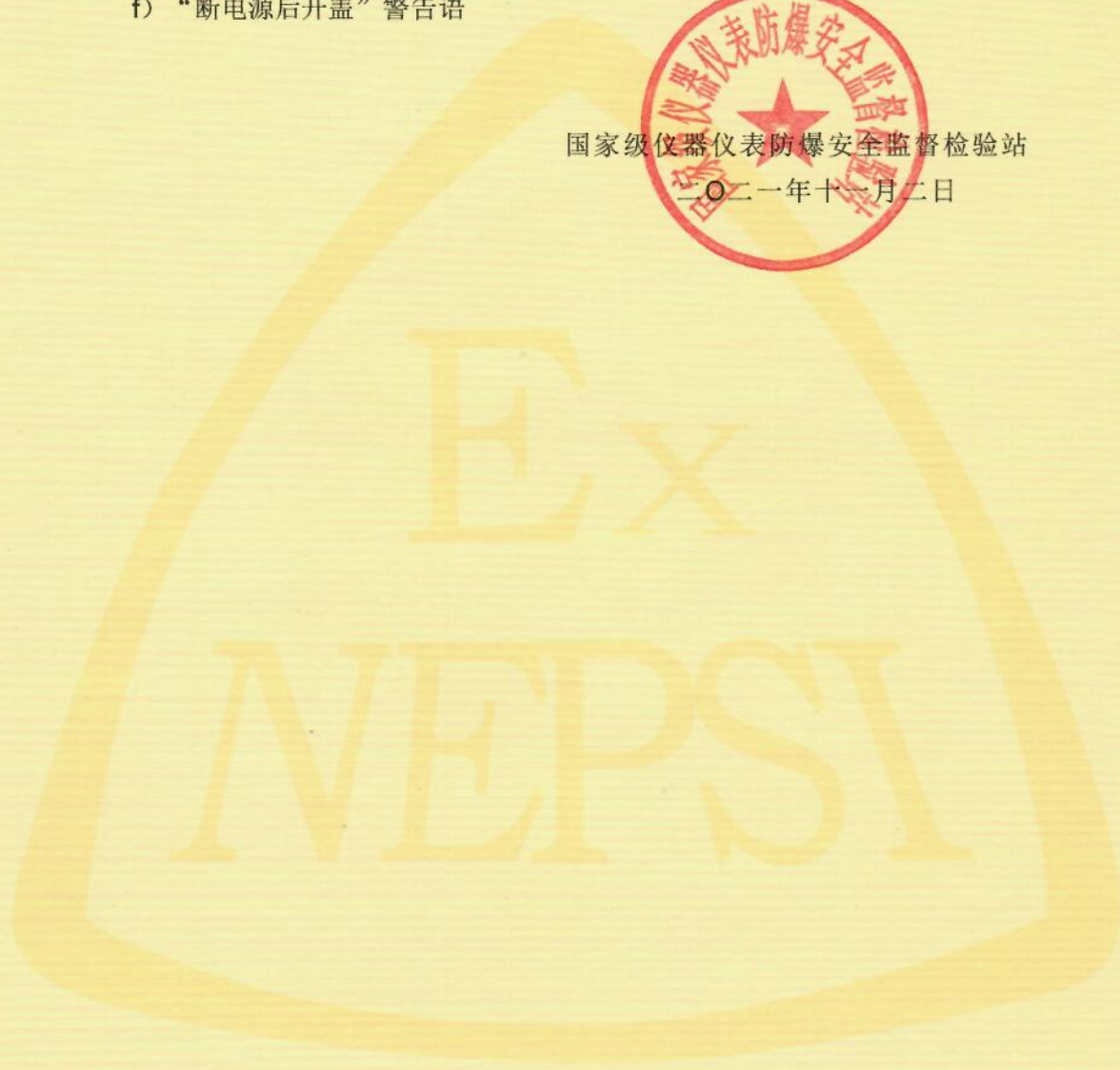
- 1、产品制造厂必须将上述使用注意事项纳入产品使用说明书；
- 2、制造厂必须严格按照NEPSI认可的文件资料生产；
- 3、产品铭牌中应至少包括下列内容：
 - a) NEPSI认可标志（见防爆合格证书）
 - b) 产品防爆标志

- c) 防爆合格证号
- d) 使用环境温度
- e) 安全电气参数
- f) “断电源后开盖”警告语



国家级仪器仪表防爆安全监督检验站

二〇二一年十一月二日



国家级仪器仪表防爆安全监督检验站

National Supervision and Inspection Centre for
Explosion Protection and Safety of Instrumentation

(GYJ21.3358X)

(Attachment I)

Attachment I to GYJ21.3358X (translation)

1. Description

Tank Gauge Radar NMR81/84 series, manufactured by Endress+Hauser SE+Co.KG, has been certified by National Supervision and Inspection Center for Explosion Protection and Safety of Instrumentation (NEPSI). This type of product accords with following standards:

GB3836.1-2010 Explosive atmospheres-Part 1: Equipment-General requirements

GB3836.2-2010 Explosive atmospheres-Part 2: Equipment protection by flameproof enclosure"d"

GB3836.4-2010 Explosive atmospheres-Part 4: Equipment protection by intrinsic safety"i"

GB3836.20-2010 Explosive atmospheres-Part 20: Equipment with equipment protection level (EPL) Ga

The Ex marking is Ex d [ja Ga] II C T* Gb Ex ia/d II C T* Ga/Gb, its certificate number is GYJ21.3358X.

Type approved in this certificate is shown as following:

NMR81-**aa b c dd ee ff gg h ii jj kkk lll** +(options)

aa indicates approval code, including NC, NE;

b indicates terminal type, including 1, 2 or 9;

c indicates power supply, including B, D, E or Y;

dd indicates primary output, including A1, B1, C1, E1, H1 or Y9;

ee indicates secondary I/O analog, including A1, A2, B1, B2, C2, X0 or Y9;

ff indicates secondary I/O digital Ex d, including A1, A2, A3, B1, B2, B3, C1, C2, C3, E1, E2, E3, X0 or Y9;

gg indicates housing, including AC, BC or Y9;

h indicates electrical connection, including A, B, E, F or Y;

ii indicates antenna, including AB, AC, AD or YY;

jj indicates process sealing, including A1, B1, B2, B3 or YY;

kkk indicates process connection (not relevant for safety);

lll indicates accuracy, weight + measure approval (not relevant for safety);

options: not relevant for safety.

Refer to instruction manual for the details.

NMR84-**aa b c dd ee ff gg h ii jj kkk lll** +(options)

aa indicates approval code, including NC;

b indicates terminal type, including 1, 2 or 9;

c indicates power supply, including B, D, E or Y;

dd indicates primary output, including A1, B1, C1, E1, H1 or Y9;

ee indicates secondary I/O analog, including A1, A2, B1, B2, C2, X0 or Y9;

ff indicates secondary I/O digital Ex d, including A1, A2, A3, B1, B2, B3, C1, C2, C3, E1, E2, E3, X0 or Y9;

gg indicates housing, including AC, BC or Y9;

h indicates electrical connection, including A, B, E, F or Y;

ii indicates antenna, including BD, BF, BG, BH, BJ or YY;

jj indicates process sealing, including A1, B1, B2 or YY;

kkk indicates process connection (not relevant for safety);

lll indicates accuracy, weight + measure approval (not relevant for safety);

options: not relevant for safety.

Refer to instruction manual for the details.

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 For ambient temperature range refer to Safety Instructions XA01581G.

2.3 An antenna coated with non-conductive material can be used if avoiding electrostatic charging (e.g. through friction, cleaning, maintenance, strong medium flow).

2.4 Use heat resisting cables rated $\geq 85^{\circ}\text{C}$ for ambient temperature $> 50^{\circ}\text{C}$.

2.5 Precautions shall be taken to minimize the risk from electrostatic discharge of non-metallic labels, varnishes/coatings on the stainless steel 316L and isolated metal tags applied to the enclosure.

3. Conditions for Safe Use

3.1 The external earth connection facility should be connected reliably.

3.2 The relationship between configuration of electronics, temperature class, ambient temperature and medium temperature is shown as the following:

	Configuration of Electronics				
	1 (worst case)	2 (best case)	3	4	5
Enclosure (Alu)	x	x	x	x	x
Slot A - IOM_D	x		x	x	x
Slot B - IOM_D	x				
Slot B - IOM_A(Ex ia)			x		x
Slot C - IOM_A(Ex ia)	x				
Slot D - IOM_D	x				x
PS_LV_DC	x	x	x	x	x

(GYJ21.3358X)

(Attachment I)

MB	x	x	x	x	x
ExLi	x	x	x	x	x

NMR81 (E-Band Radar with Aluminum enclosure):

Temperature Class	Maximum ambient temperature /°C	Maximum allowed ambient temperature at maximum process temperature /°C	Maximum process temperature /°C
Configuration 1			
T6	55	51	85
T5	55	46	100
T4	55	50	135
T3,T2,T1	55	47	200
Configuration 2			
T6	60	51	85
T5	60	46	100
T4	60	58	135
T3,T2,T1	60	54	200
Configuration 3			
T6	58	51	85
T5	58	46	100
T4	58	54	135
T3,T2,T1	58	51	200
Configuration 4			
T6	60	51	85
T5	60	46	100
T4	60	56	135
T3,T2,T1	60	53	200
Configuration 5			
T6	55	51	85
T5	55	46	100
T4	55	52	135
T3,T2,T1	55	49	200

NMR81 (E-Band Radar with Stainless Steel enclosure):

Temperature Class	Maximum ambient temperature /°C	Maximum allowed ambient temperature at maximum process temperature /°C	Maximum process temperature /°C
Configuration 1			
T6	43	40	85
T5	43	37	100
T4	43	37	135
T3,T2,T1	43	32	200
Configuration 2			
T6	55	46	85
T5	55	38	100
T4	55	52	135
T3,T2,T1	55	46	200
Configuration 3			
T6	50	45	85

(GYJ21.3358X)**(Attachment I)**

T5	50	38	100
T4	50	45	135
T3,T2,T1	50	40	200
Configuration 4			
T6	53	46	85
T5	53	38	100
T4	53	46	135
T3,T2,T1	53	43	200
Configuration 5			
T6	45	44	85
T5	45	38	100
T4	45	40	135
T3,T2,T1	45	36	200

NMR84 (C-Band Radar with Aluminum enclosure):

Temperature Class	Maximum ambient temperature /°C	Maximum allowed ambient temperature at maximum process temperature /°C	Maximum process temperature /°C
Configuration 1			
T6	55	52	85
T5	55	52	100
T4	55	49	135
T3,T2,T1	55	49	150
Configuration 2			
T6	60	60	85
T5	60	59	100
T4	60	56	135
T3,T2,T1	60	56	150
Configuration 3			
T6	58	55	85
T5	58	55	100
T4	58	53	135
T3,T2,T1	58	53	150
Configuration 4			
T6	60	57	85
T5	60	57	100
T4	60	54	135
T3,T2,T1	60	54	150
Configuration 5			
T6	55	55	85
T5	55	54	100
T4	55	51	135
T3,T2,T1	55	51	150

NMR84 (C-Band Radar with Stainless Steel enclosure):

Temperature Class	Maximum ambient temperature /°C	Maximum allowed ambient temperature at maximum process temperature /°C	Maximum process temperature /°C

Configuration 1			
T6	43	39	85
T5	43	39	100
T4	43	36	135
T3,T2,T1	43	36	150
Configuration 2			
T6	55	55	85
T5	55	54	100
T4	55	51	135
T3,T2,T1	55	51	150
Configuration 3			
T6	50	47	85
T5	50	47	100
T4	50	44	135
T3,T2,T1	50	44	150
Configuration 4			
T6	53	50	85
T5	53	50	100
T4	53	46	135
T3,T2,T1	53	46	150
Configuration 5			
T6	45	43	85
T5	45	43	100
T4	45	39	135
T3,T2,T1	45	39	150

3.3 Suitable certified cable glands or blinding plugs for unused holes approved by ExTL according to GB 3836.1-2010 and GB 3836.2-2010 with Ex marking "Ex d 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.

3.4 Electrical data

85V - 264V AC or 52V - 75V AC or 19V - 64V DC.

3.5 Any maintenance shall be performed only when the warning of "Do not open while the circuit is alive" is observed (for Ex d compartment).

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

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

GB 50257-2014 "Code for construction and acceptance of electric device for explosion atmospheres and fire hazard electrical equipment installation engineering".

GB 3836.13-2013 "Explosive atmospheres- Part 13:Equipment repair, overhaul and reclamation".

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


GB/T 3836.16-2017 "Explosive atmospheres- Part 16:Electrical installations inspection and maintenance".

4. Manufacturer's Responsibility

4.1 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.

4.3 Nameplate should at least include these contents listed below:

- 1) NEPSI logo 
- 2) Ex marking
- 3) certificate number
- 4) ambient temperature range
- 5) safety parameters
- 6) warning of "Do not open while the circuit is alive"

National Supervision and Inspection Center
for Explosion Protection and Safety of Instrumentation

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