Level Pressure Flow Temperature Liquid Analysis Registration Systems Components Services Solutions

Safety Instructions

Liquiphant M/S
FTL50(H), FTL51(H), FTL51C, FTL70, FTL71

Ex nA II T3...T6, Ex nC/nL IIC T3...T6 (FTL5x(H), FTL51C), Ex nA II T2...T6, Ex nC/nL IIC T2...T6 (FTL70/71)

NEPSI GYJ091298, NEPSI GYJ071414 (FTL5x(H), FTL51C), NEPSI GYJ091299, NEPSI GYJ071415 (FTL70/71)

XC010F-D

en - Safety instructions for electrical apparatus for explosion-hazardous areas.

zh - 爆炸环境中电气仪表的安全指南。

XC010F-D/00/B2/12.09
71107465

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Liquiphant M/S
FTL50(H), FTL51(H), FTL51C, FTL70, FTL71

english

Associated Documentation

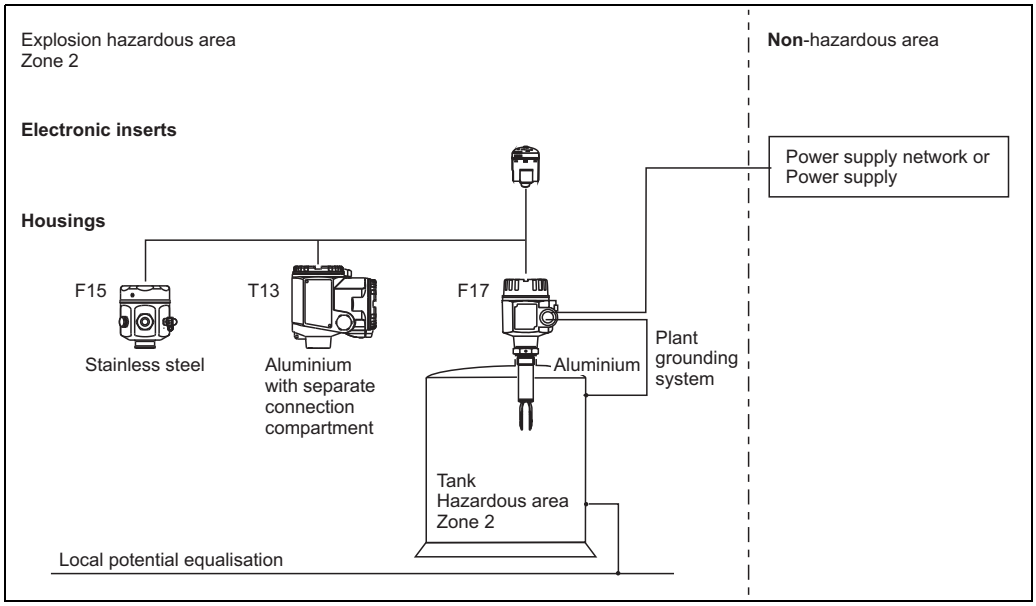
This document is an integral part of the following Operating Instructions:
KA143F/00, KA144F/00, KA163F/00, KA164F/00, KA162F/00, KA165F/00, KA172F/00, KA173F/00

The Operating Instructions which are supplied and correspond to the device type apply.

Designation

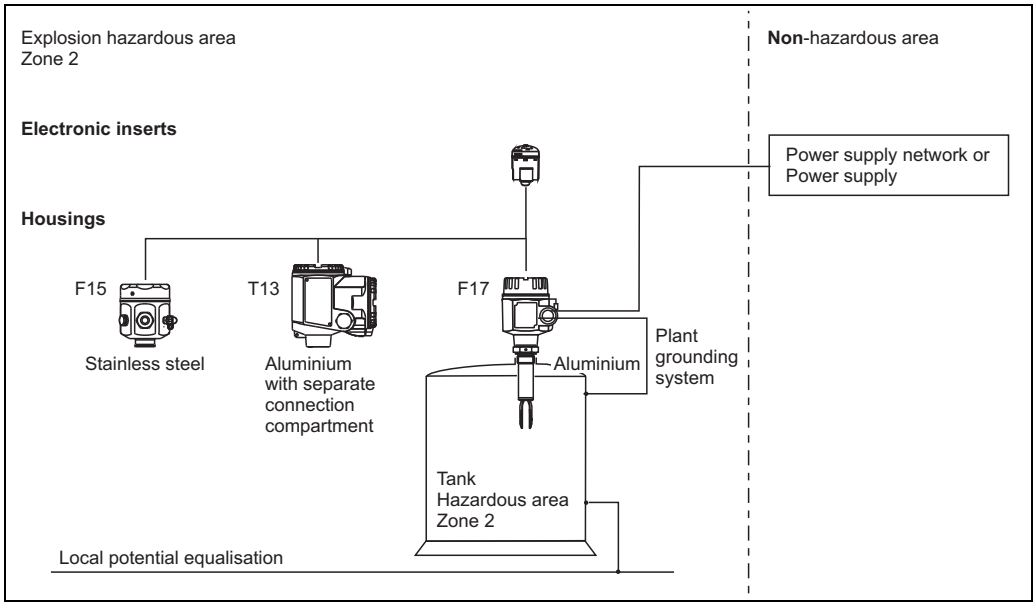
Designation of explosion protection	FTL50/51(H), FTL51C	**Ex**	**nA**	**II**	**T3...T6**
		Ex	**nC**	**IIC**	**T3...T6**
		Ex	**nL**	**IIC**	**T3...T6**
	FTL70, FTL71	**Ex**	**nA**	**II**	**T2...T6**
		Ex	**nC**	**IIC**	**T2...T6**
		Ex	**nL**	**IIC**	**T2...T6**

Ex nA II T6



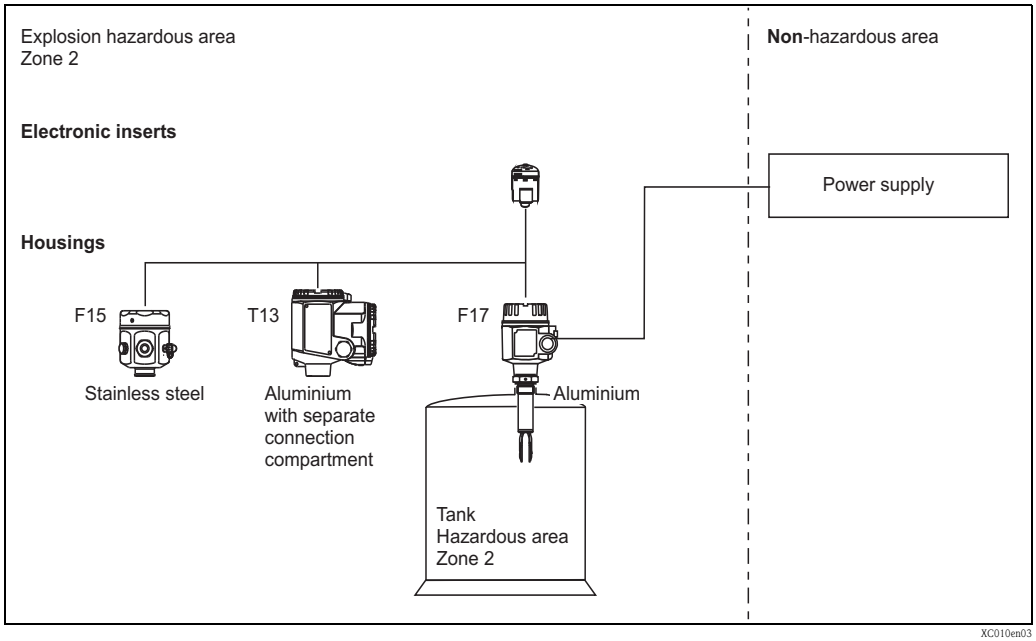
Type of protection	Electronic insert	Ambient temperature (Housing)
Ex nA II T6	FEL51/52/55/56/57/58	–50 °C ≤ Ta ≤ +70 °C
	FEL50A, FEL50D	–50 °C ≤ Ta ≤ +60 °C

Ex nC IIC T6



Type of protection	Electronic insert	Ambient temperature (Housing)
Ex nC IIC T6	FEL54	–50 °C ≤ Ta ≤ +70 °C

Ex nL IIC T6

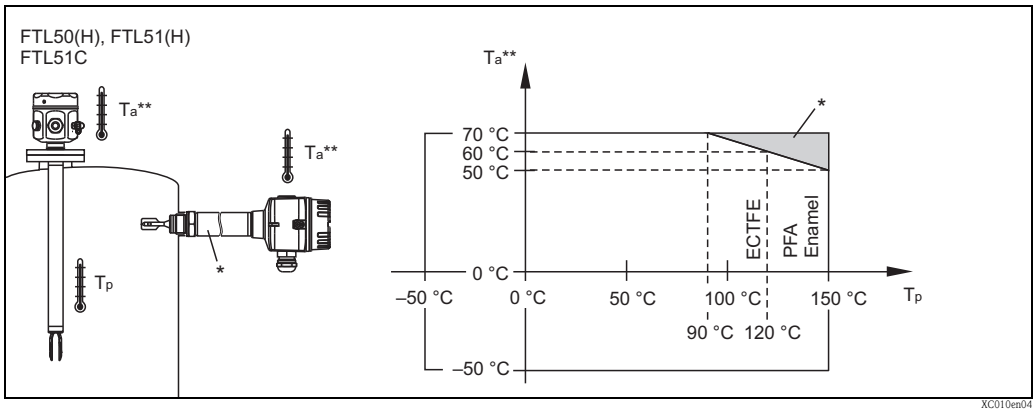


Type of protection	Electronic insert	Ambient temperature (Housing)
Ex nL IIC T6	FEL55/56/57/58	–50 °C ≤ Ta ≤ +70 °C
	FEL50A, FEL50D	–50 °C ≤ Ta ≤ +60 °C

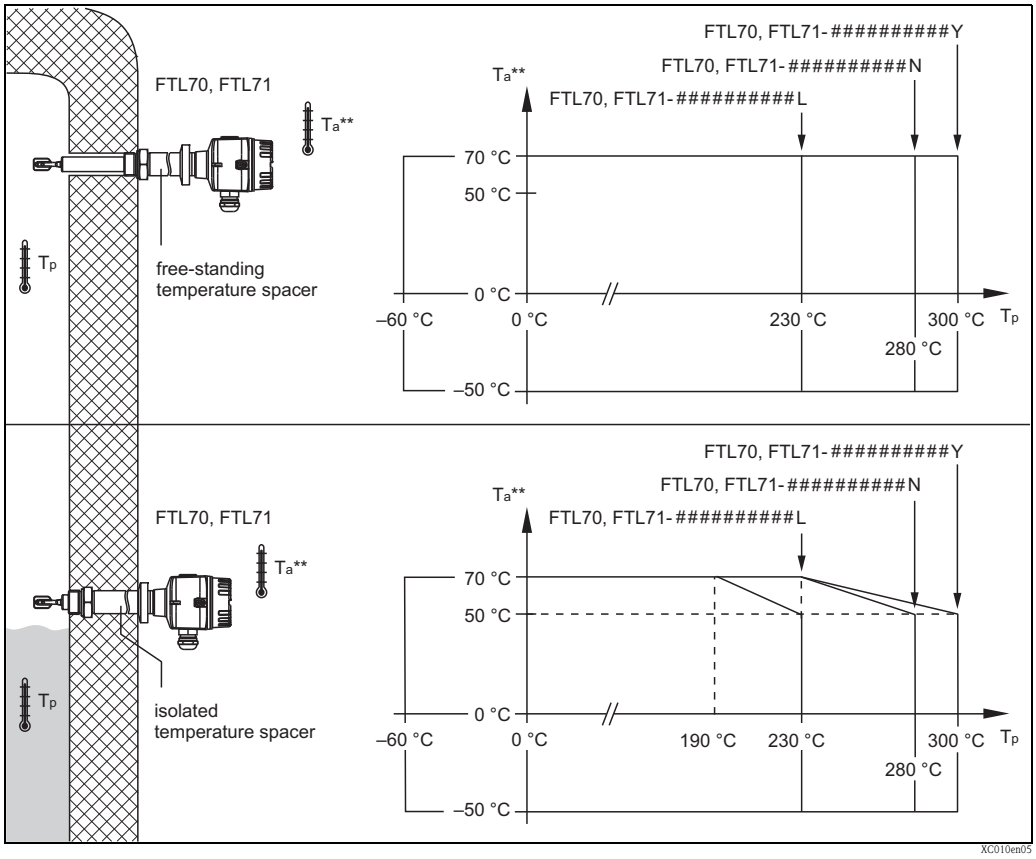
Electronic insert	Ui	Ii	Pi	Ci	Li
FEL55	36.0 V	100 mA	1.0 W	0.0 nF	0.0 mH
FEL56	18.1 V	52 mA	0.17 W	0.0 nF	0.0 mH
FEL57	16.7 V	150 mA	1.0 W	0.0 nF	0.0 mH
FEL58	18.1 V	52 mA	0.17 W	0.0 nF	0.0 mH
FEL50A (PROFIBUS PA)	17.5 V	500 mA	5.5 W	2.7 nF	0.01 mH
FEL50D	27.6 V	93 mA	0.64 W	2.0 nF	0.133 mH

The dependency of the ambient and process temperatures upon the temperature class:

Type	Temperature class	Process temperature (sensor), Tp (process)	Ambient temperature (electronics), Ta (ambient)
FTL50(H), FTL51(H); FTL51C (ECTFE, PFA or enamel coating)	T6	–50 °C... +85 °C	–50 °C...+70 °C with FEL50A, FEL50D: –50 °C...+60 °C
FTL70, FTL71		–60 °C... +85 °C	
FTL50(H), FTL51(H); FTL51C (ECTFE, PFA or enamel coating)	T5	–50 °C...+100 °C	FTL50, FTL51, FTL51C: –50 °C...+70 °C with temperature spacer; without temperature spacer see temperature diagram below FTL70, FTL71: –50 °C...+70 °C
FTL70, FTL71		–60 °C...+100 °C	
FTL51C (ECTFE coating)	T4	–50 °C...+120 °C	
FTL50(H), FTL51(H); FTL51C (PFA or enamel coating)	T4	–50 °C...+135 °C	
FTL70, FTL71		–60 °C...+135 °C	
FTL50(H), FTL51(H); FTL51C (PFA or enamel coating)	T3	–50 °C...+150 °C	
FTL70, FTL71	T3	–60 °C...+200 °C	–50 °C...+70 °C For restrictions, see the temperature diagram on the next page
FTL70, FTL71- L	T2	–60 °C...+230 °C	
FTL70, FTL71- . . . . . N	T2	–60 °C...+280 °C	
FTL70, FTL71- . . . . . Y	T2	–60 °C...+300 °C	



* *Additional temperature range for sensors with temperature spacer or pressure-tight bushing*
** *FEL50A, FEL50D: –50 °C ≤ Ta ≤ +60 °C (T6)*



*** FEL50A, FEL50D: –50 °C ≤ Ta ≤ +60 °C (T6)*

Safety instructions: Installation

- Comply with the installation and safety instructions in the Operating Instructions.
- Install the device according to the manufacturer's instructions and any other valid standards and regulations.
- Users must not modify the internal components of the product on their own, as this may affect the explosion protection performance.
- The housing of the level limit switch is equipped with a ground terminal; users must ensure that it is reliably connected to ground during installation and use.
- For installation, use and maintenance of the device, users must also observe the requirements stated in the Operating Instructions and the standards:
  - GB50257-1996: "Code for construction and acceptance of electric device for explosion atmospheres and fire hazard electrical equipment installation engineering".
  - GB3836.13-1997: "Electrical apparatus for explosive gas atmospheres, Part 13: Repair and overhaul for apparatus used in explosive gas atmospheres".
  - GB3836.15-2000: "Electrical apparatus for explosive gas atmospheres, Part 15: Electrical installations in hazardous area (other than mines)".
  - GB3836.16-2006: "Electrical apparatus for for explosive gas atmospheres, Part 16: Inspection and maintenance of electrical installation (other than mines)".

nA/nC:

- Do not open the connection or electronics compartments under voltage in an explosive atmosphere.

nL:

- When the level limit switch is connected to the signal receiving control equipment (associated energy-limited equipment) located in the safe areas, it must also conform to the following specifications:
  $U_o \leq U_i$, $I_o \leq I_i$, $P_o \leq P_i$, $C_o \geq C_i + C_c$, $L_o \geq L_i + L_c$

  Note:
  C_c and L_c represent the distributed capacitance and inductance of the respective connected cable.
  U_i, I_i and P_i represent the maximum input voltage, maximum input current and maximum input power of the respective level limit switch.
  U_o, I_o and P_o represent the output safety parameters of the connected relevant energy-limited equipment.

Liquiphant M/S
FTL50(H), FTL51(H), FTL51C, FTL70, FTL71

中文

相关资料

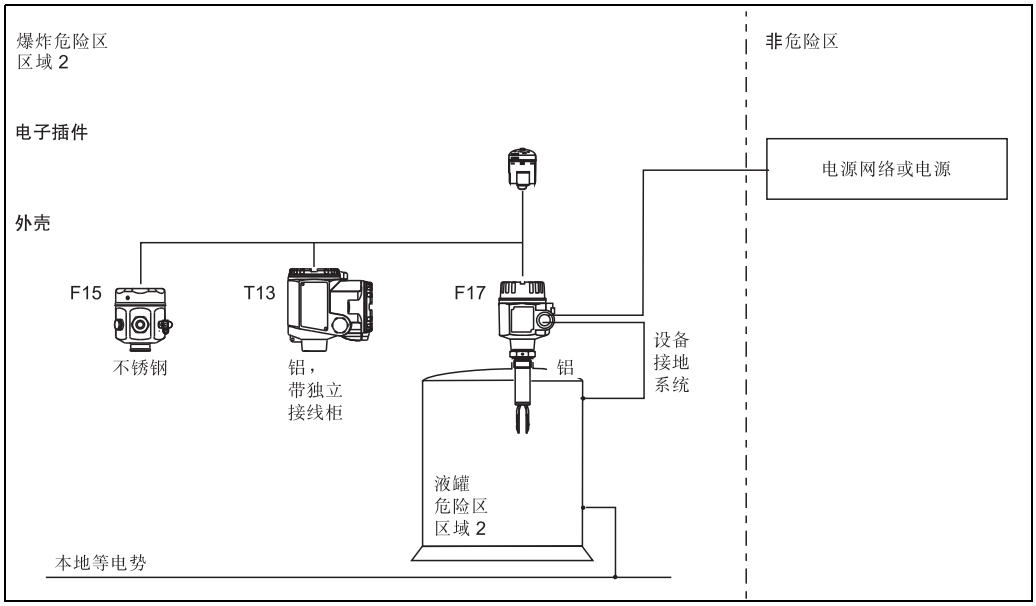
本文档是下列操作手册的组成部分：
KA143F/00, KA144F/00, KA163F/00, KA164F/00, KA162F/00, KA165F/00, KA172F/00, KA173F/00

根据用户订购仪表的具体型号所提供的相应操作手册。

名称

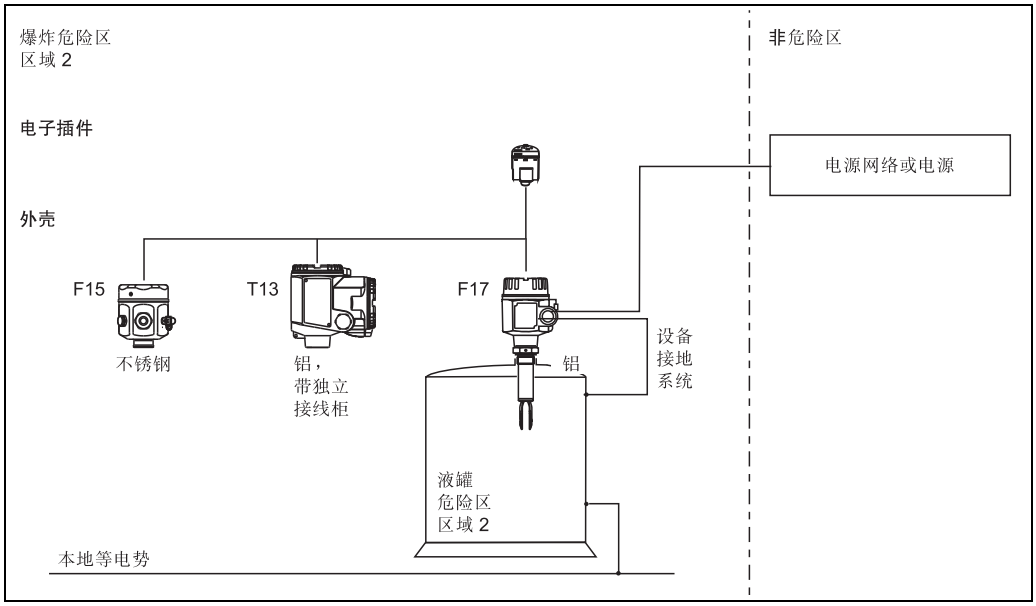
防爆代号	FTL50/51(H), FTL51C	**Ex**	**nA**	**II**	**T3...T6**
		Ex	**nC**	**IIC**	**T3...T6**
		Ex	**nL**	**IIC**	**T3...T6**
	FTL70, FTL71	**Ex**	**nA**	**II**	**T2...T6**
		Ex	**nC**	**IIC**	**T2...T6**
		Ex	**nL**	**IIC**	**T2...T6**

Ex nA II T6



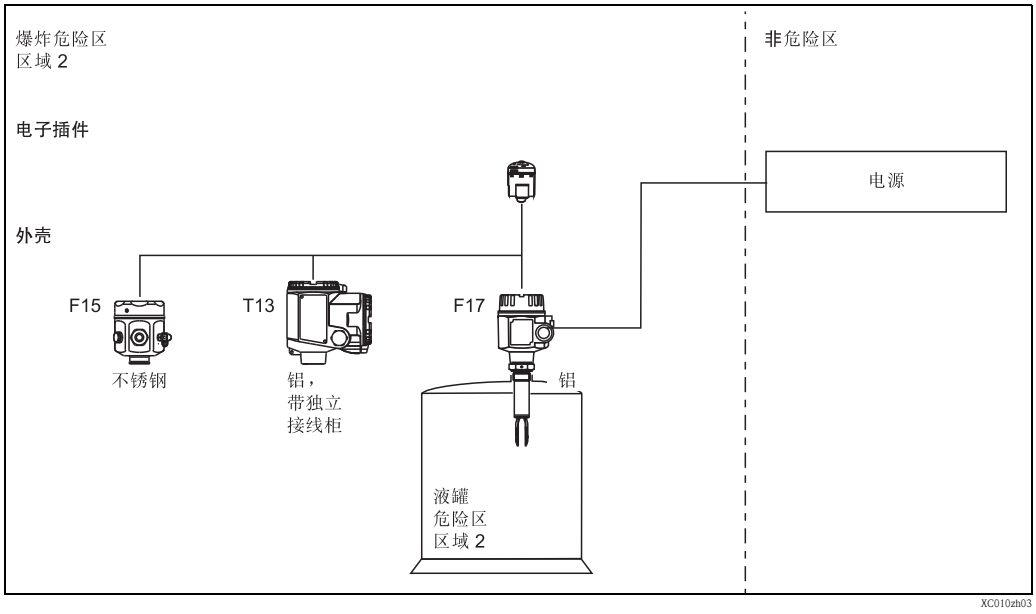
防护类型	电子插件	环境温度 (外壳)
Ex nA II T6	FEL51/52/55/56/57/58	–50 °C ≤ Ta ≤ +70 °C
	FEL50A, FEL50D	–50 °C ≤ Ta ≤ +60 °C

Ex nC IIC T6



防护类型	电子插件	环境温度 (外壳)
Ex nC IIC T6	FEL54	–50 °C ≤ Ta ≤ +70 °C

Ex nL IIC T6

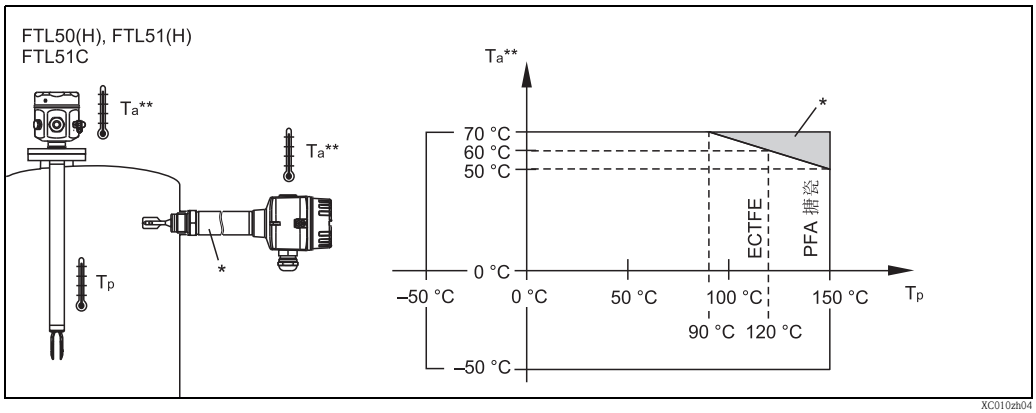


防护类型	电子插件	环境温度 (外壳)
Ex nL IIC T6	FEL55/56/57/58	–50 °C ≤ Ta ≤ +70 °C
	FEL50A, FEL50D	–50 °C ≤ Ta ≤ +60 °C

电子插件	Ui	Ii	Pi	Ci	Li
FEL55	36.0 V	100 mA	1.0 W	0.0 nF	0.0 mH
FEL56	18.1 V	52 mA	0.17 W	0.0 nF	0.0 mH
FEL57	16.7 V	150 mA	1.0 W	0.0 nF	0.0 mH
FEL58	18.1 V	52 mA	0.17 W	0.0 nF	0.0 mH
FEL50A (PROFIBUS PA)	17.5 V	500 mA	5.5 W	2.7 nF	0.01 mH
FEL50D	27.6 V	93 mA	0.64 W	2.0 nF	0.133 mH

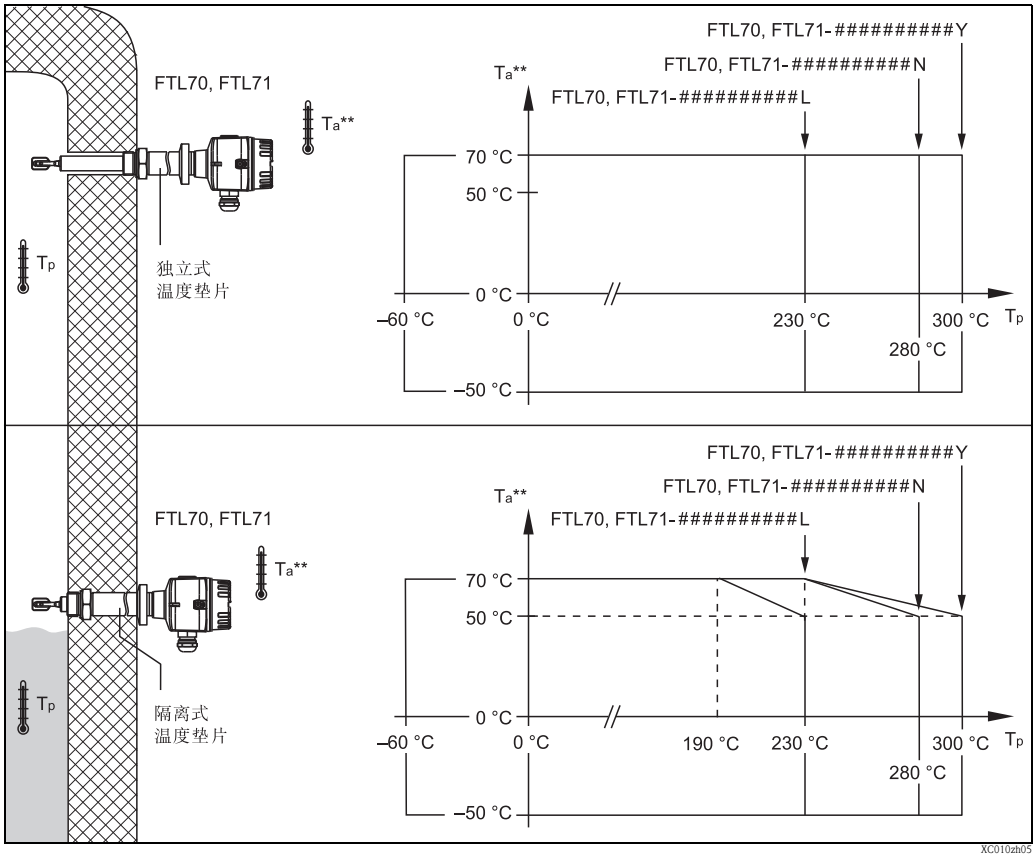
环境温度和过程温度与温度组别的关系：

类型	温度组别	过程温度 (传感器)，Tp (过程)	环境温度 (电子部件)，Ta (环境)
FTL50(H), FTL51(H) ；FTL51C (ECTFE、 PFA 或搪瓷涂层)	T6	–50 °C... +85 °C	–50 °C...+70 °C 对于 FEL50A, FEL50D：–50 °C...+60 °C
FTL70, FTL71		–60 °C... +85 °C	
FTL50(H), FTL51(H) ；FTL51C (ECTFE、 PFA 或搪瓷涂层)	T5	–50 °C...+100 °C	FTL50, FTL51, FTL51C：–50 °C...+70 °C 带温度垫片； 不带温度垫片 参见下面的温度图表 FTL70, FTL71：–50 °C...+70 °C
FTL70, FTL71		–60 °C...+100 °C	
FTL51C (ECTFE 涂层)	T4	–50 °C...+120 °C	
FTL50(H), FTL51(H) ；FTL51C (PFA 或搪瓷涂层)	T4	–50 °C...+135 °C	
FTL70, FTL71		–60 °C...+135 °C	
FTL50(H), FTL51(H) ；FTL51C (PFA 或搪瓷涂层)	T3	–50 °C...+150 °C	
FTL70, FTL71	T3	–60 °C...+200 °C	–50 °C...+70 °C 限制条件请参见下页中的温度图表
FTL70, FTL71-.....L	T2	–60 °C...+230 °C	
FTL70, FTL71-.....N	T2	–60 °C...+280 °C	
FTL70, FTL71-.....Y	T2	–60 °C...+300 °C	



* *带温度垫片或耐压密封套管的传感器的附加温度范围*

** *FEL50A, FEL50D：–50 °C ≤ Ta ≤ +60 °C (T6)*



** *FEL50A, FEL50D：–50 °C ≤ Ta ≤ +60 °C (T6)*

安全指南：
安装

- 遵守操作说明中的安装说明和安全指南。
- 按照制造商的说明及其它有效标准和规定来安装设备。
- 用户不得自行更改产品的内部部件，因为这可能影响防爆性能。
- 液位限位开关的外壳配备有一个接地端子；在安装和使用的过程中，用户应确保该端子可靠接地。
- 在安装、使用和维护设备时，用户必须遵守操作说明和下列标准中的规定：
  – GB50257-1996：“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”。
  – GB3836.13-1997：“爆炸性气体环境用电气设备，第 13 部分：爆炸性气体环境用电气设备的检修”。
  – GB3836.15-2000：“爆炸性气体环境用电气设备，第 15 部分：危险场所电气安装 (煤矿除外)”。
  – GB3836.16-2006：“爆炸性气体环境用电气设备，第 16 部分：电气装置的检查和维护 (煤矿除外)”。

nA/nC：

- 在爆炸性空气环境中使用仪表时，请勿带电压开启接线柜或电子部件柜。

nL：

- 当液位限位开关连接至位于安全区域的信号接收控制设备 (关联限能设备) 时，还应符合以下技术规范：
  $U_o \le U_i$， $I_o \le I_i$， $P_o \le P_i$， $C_o \ge C_i + C_c$， $L_o \ge L_i + L_c$

  注意：
  Cc 和 Lc 分别代表各连接电缆的分布电容和分布电感。
  Ui、 Ii 和 Pi 分别代表各液位限位开关的最大输入电压、最大输入电流和最大输入功率。
  Uo、 Io 和 Po 分别代表所连接的关联限能设备的安全输出参数。

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