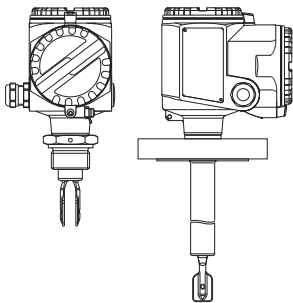


简明操作指南

Liquiphant M FTL50/51-#####7#

ZH- 音叉液位开关



ZH - 目录

安全注意事项	3
搬运	4
设备标识	6
应用	12
测量系统	13
安装	17
设置	26
指示灯信号	31
连接	32
维护和清洁	54
技术参数	55
附件	57
故障排除	60
备件	62
维修	64
补充文档资料	65



小心!

= 禁止;

若不遵守会导致操作错误
或损坏设备。

ZH- 安全注意事项

Liquiphant M FTL50、FTL51

音叉液位开关用于液体限位检测。

如果使用不当，可能会在实际应用场合中引发危险。

仅允许经授权的合格专业人员

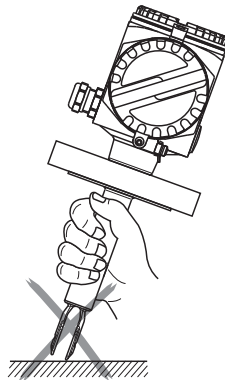
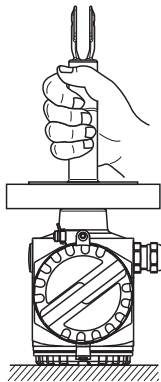
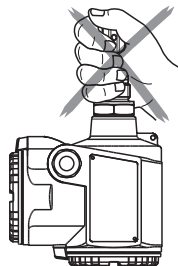
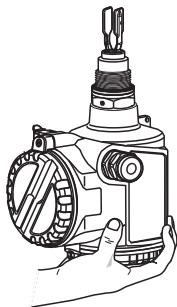
执行 Liquiphant M FTL50、

FTL51 音叉液位开关的安装、连接、调试、操作和维护，同时严格遵守《操作手册》、相关标准和法规要求以及证书（可选）。

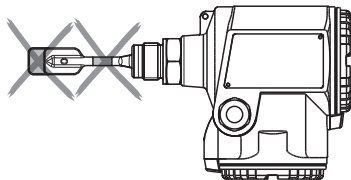
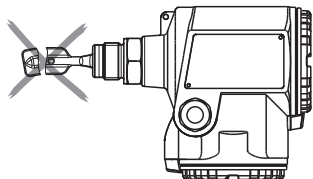
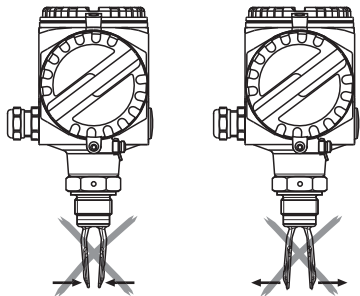
在设备附近安装便于操作的电源开关，并标识为设备的断路保护器。

ZH- 搬运

在搬运过程中，手握设备的外壳、法兰或延长管。



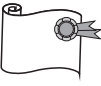
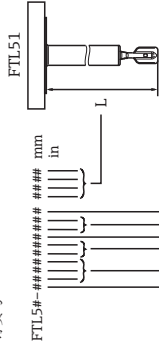
ZH- 禁止弯曲叉体
禁止截短叉体
禁止拉伸叉体



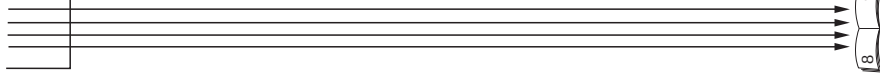


ENDRESS+HAUSER
LIQUIPHANT M

订货号



A	* ¹				
B	ATEX II 3 G	EEx nC II	T6, WHG		
	ATEX II 3 D	T85°C* ³			
C	ATEX II 3 G	EEx nA II	T6, WHG		
	ATEX II 3 D	T85°C* ³			
D	* ¹ , WHG				
E	ATEX II 1/2 G	EEx de IIC	T6, WHG		
F	ATEX II 1/2 G	EEx ia IIC	T6, WHG		
	ATEX II 1/2 D	T80°C* ³			
G	ATEX II 1/2 G	EEx ia IIC	T6		
	ATEX II 1/2 D	T80°C* ³			
H	ATEX II 1 G	EEx ia IIC	T6		
I	ATEX II 1/2 G	EEx de IIC	T6		
J	ATEX II 1 G	EEx ia IIC	T6, WHG		
K	ATEX II 1/2 G	EEx d IIC	T6		
L	ATEX II 1/2 G	EEx d IIC	T6, WHG		
M	NEPSI Ex ia IIC	T6			
N	NEPSI Ex d IIC	T6			
P	FM IS, C.I.I, II, III,	Div. 1, Gr. A-G			
Q	FM XP, C.I.I, II, III,	Div. 1, Gr. B-G, E5 => Gr. A-G			
R	FM NI, C.I.I,	Div. 2, Gr. A-D			
S	CSA IS, C.I.I, II, III,	Div. 1, Gr. A-G			
T	CSA XP, C.I.I, II, III,	Div. 1, Gr. A-G			
U	CSA General purpose				
V	TIIS Ex ia IIC	T3			
W	TIIS Ex d IIB	T3			
X	TIIS Ex ia IIC	T3			
7	TIIS Ex d IIC	T3			
8	TIIS Ex d IIC	T6			
Y	* ²				








8 9

A##
B##
C##
D##
F##
K##
N##

法兰

10 11

GE2	R 3/8,	DIN 2999, 316L	 最大 100 bar, 150 °C
GE5	R 3/4,	DIN 2999, AlloyC4	
GE6	R 3/4,	DIN 2999, AlloyC22	
GF2	R 1,	DIN 2999, 316L	
GF5	R 1,	DIN 2999, AlloyC4	
GF6	R 1,	DIN 2999, AlloyC22	
GM2	NPT 3/8, ANSI,	316L	
GM5	NPT 3/8, ANSI,	AlloyC4	
GM6	NPT 3/8, ANSI,	AlloyC22	
GN2	NPT 1, ANSI,	316L	
GN5	NPT 1, ANSI,	AlloyC4	 最大 100 bar, 150 °C
GN6	NPT 1, ANSI,	AlloyC22	
GQ2	G 3/8,	ISO 228, 316L	
GQ5	G 3/8,	ISO 228, AlloyC4	
GQ6	G 3/8,	ISO 228, AlloyC22	 最大 25 bar, 150 °C 最大 40 bar, 100 °C
GR2	G 1,	ISO 228, 316L	
GR5	G 1,	ISO 228, AlloyC4	 最大 16 bar, 120 °C 最大 2 bar, 150 °C
GR6	G 1,	ISO 228, AlloyC22	
GW2	G 1,	ISO 228, 316L	
TC2	DN25-38 (1...1 1/2"), ISO 2852, 316L	Tri-Clamp 卡箍	 最大 16 bar, 120 °C 最大 2 bar, 150 °C
TE2	DN40-51 (2"), ISO 2852, 316L	Tri-Clamp 卡箍	
YY9	*		

*¹ 无
 *² 其他
 *³ 不适用 PBT 材质



ENDRESS+HAUSER
LIQUIPHANT M

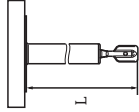
订货号

FTL5#-##### mm

in



FTL51



Ra < 3.2 µm/80 grit (FTL50)

Ra < 3.2 µm/80 grit

mm, 316L,

mm, AlloyC4,

Ra < 3.2 µm/80 grit

in, 316L,

in, AlloyC4,

Ra < 3.2 µm/80 grit

"L II",

AlloyC4,

Ra < 3.2 µm/80 grit

"L II",

AlloyC4,

Ra < 3.2 µm/80 grit

"L II",

AlloyC4,

Ra < 3.2 µm/80 grit

"L II",

AlloyC4,

Ra < 3.2 µm/80 grit

"L II",

AlloyC4,

Ra < 3.2 µm/80 grit

"L II",

AlloyC4,

Ra < 3.2 µm/80 grit

"L II",

AlloyC4,

Ra < 3.2 µm/80 grit

"L II",

AlloyC4,

Ra < 3.2 µm/80 grit

"L II",

AlloyC4,

Ra < 3.2 µm/80 grit

"L II",

AlloyC4,

Ra < 3.2 µm/80 grit

"L II",

AlloyC4,

AA ²,

BB

BE

CB

CE

DB "L II",

DE "L II",

IA ²,

JB

JE

KB

KE

LB "L II",

LE "L II",

QA ²,

RB

RE

SB

SE

TB "L II",

TE "L II",

YY ²

mm, 316L,

mm, AlloyC4,

in, 316L,

in, AlloyC4,

"L II",

AlloyC4,

"L II",

AlloyC4,

mm, 316L

mm, AlloyC4

in, 316L

in, AlloyC4

"L II",

AlloyC4

"L II",

AlloyC4

mm, 316L

mm, AlloyC4

in, 316L

in, AlloyC4

"L II",

AlloyC4

"L II",

AlloyC4

mm, 316L

mm, AlloyC4

in, 316L

in, AlloyC4

"L II",

AlloyC4

"L II",

AlloyC4

mm, 316L

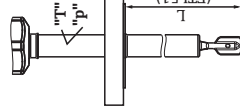
mm, AlloyC4

in, 316L

in, AlloyC4

"L II",

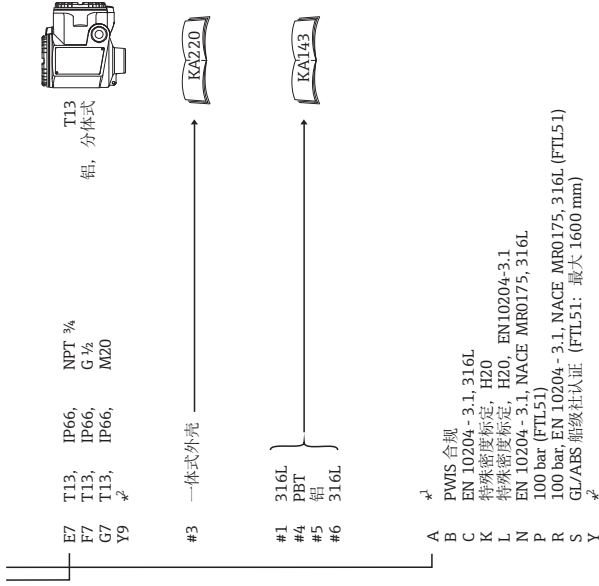
AlloyC4



A FEL50A, PROFIBUS PA
 1 FEL51, 19...253 V AC
 2 FEL52, 10... 55 V DC, PNP
 4 FEL54, 19...253 V AC, 19...55 V DC, DPDT
 5 FEL55, 11... 3.6 V DC, 8/16mA
 6 FEL56, NAMUR, L-H
 7 FEL57, PFM
 8 FEL58, NAMUR, H-L
 9 ²



34...53



*1 无

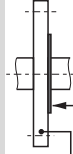
*2 其他

“LII” 开关点

LiquiphantII FTL 360/365, FDL 30/35

“T” 隔热管

“p” 压力密封衬套

**ANSI B 16.5**

AA2	1 1/4"	150 lbs, RF, 316/316L
AB2	1 1/2"	300 lbs, RF, 316/316L (FTL51)
AC2	1 1/2"	150 lbs, RF, 316/316L
AD2	1 1/2"	300 lbs, RF, 316/316L (FTL51)
AE2	2"	150 lbs, RF, 316/316L
AE5	2"	150 lbs, RF, Alloy C22 > 316/316L
AE6	2"	300 lbs, RF, Alloy C22 > 316/316L
AF2	2"	300 lbs, RF, 316/316L
AG2	2"	600 lbs, RF, 316/316L (FTL51)
AJ2	2 1/2"	300 lbs, RF, 316/316L (FTL51)
AL2	3"	150 lbs, RF, 316/316L
AM2	3"	300 lbs, RF, 316/316L (FTL51)
AN2	3"	600 lbs, RF, 316/316L (FTL51)
AP2	4"	150 lbs, RF, 316/316L
AQ2	4"	300 lbs, RF, 316/316L (FTL51)
AR2	4"	600 lbs, RF, 316/316L (FTL51)
AR2	1"	150 lbs, RF, 316/316L

EN 1092-1

BA2	DN32,	PN6 A,	316L
BB2	DN32,	PN25/40A,	316L
BC2	DN40,	PN6 A,	316L
BD2	DN40,	PN25/40A,	316L
BE2	DN50,	PN6 A,	316L
BG2	DN50,	PN25/40A,	316L
BH2	DN65,	PN6 A,	316L
BJ2	DN50,	PN100 A,	316L (FTL51)
BK2	DN65,	PN25/40A,	316L
BM2	DN80,	PN10/16A,	316L
BN2	DN80,	PN25/40A,	316L
BQ2	DN100,	PN10/16A,	316L
BR2	DN100,	PN25/40A,	316L

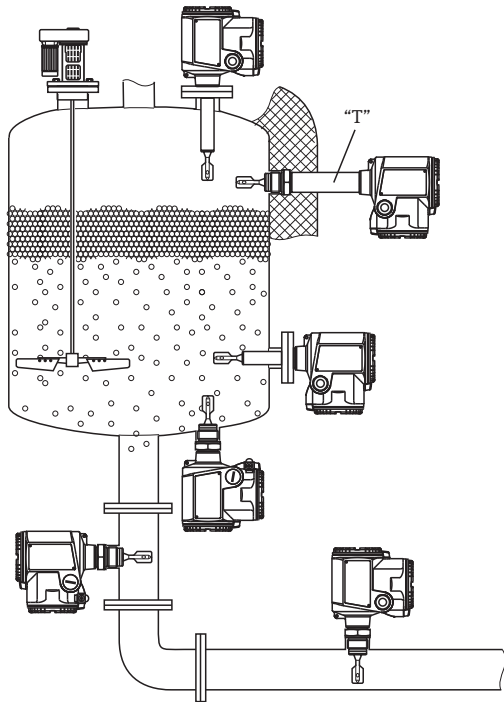
B12 DN80, PN100 A, 316L (FTL51)
 B82 DN25, PN25/40A, 316L
 CA2 DN32, PN6 B1, 316L
 CA5 DN32, PN6, AlloyC4 >316L
 CA6 DN32, PN6, AlloyC22 >316L
 CE2 DN50, PN6 B1, 316L
 CE5 DN50, PN6, AlloyC4 >316L
 CE6 DN50, PN6, AlloyC22 >316L
 CG2 DN50, PN25/40B1, 316L
 CG 5 DN50, PN25/40, AlloyC4 >316L
 CG 6 DN50, PN25/40, AlloyC22 >316L
 CJ2 DN50, PN100 B2, 316L (FTL51)
 CN2 DN80, PN25/40B1, 316L
 CN5 DN80, PN25/40, AlloyC4 >316L
 CN6 DN80, PN25/40, AlloyC22 >316L
 CQ2 DN100, PN10/16B1, 316L
 CQ 5 DN100, PN10/16, AlloyC4 >316L
 CQ 6 DN100, PN10/16, AlloyC22 >316L
 C12 DN80, PN100 B2, 316L (FTL51)
 C82 DN25, PN25/40B1, 316L
 C85 DN25, PN25/40, AlloyC4 >316L
 C86 DN25, PN25/40, AlloyC22 >316L
 DG2 DN50, PN40 B1, 316L
 DN2 DN80, PN40 B1, 316L
 D82 DN25, PN40 B1, 316L
 FG2 DN50, PN40 C, 316L
 NG2 DN50, PN40 D, 316L

JIS B2220

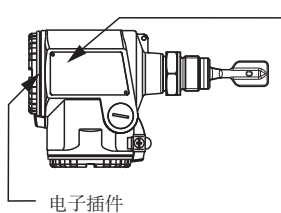
KA2 10K 25, RF, 316L
 KC2 10K 40, RF, 316L
 KE2 10K 50, RF, 316L
 KE5 10K 50, RF, AlloyC4 >316L
 KE6 10K 50, RF, AlloyC22 >316L
 KL2 10K 80, RF, 316L
 KP2 10K 100, RF, 316L

ZH- 应用

液体限位检测

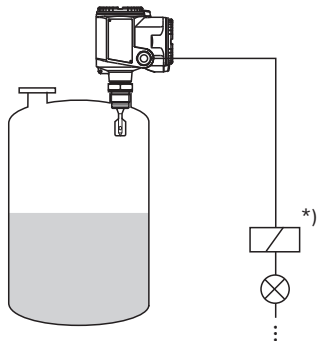


ZH- 测量系统 直接连接负载



订货号:
FTL5# - # # # # # # # # # #

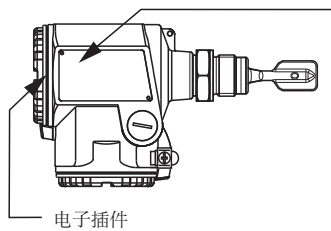
FEL51
FEL52
FEL54



*.) 外部负载

ZH- 测量系统

通过开关单元连接负载

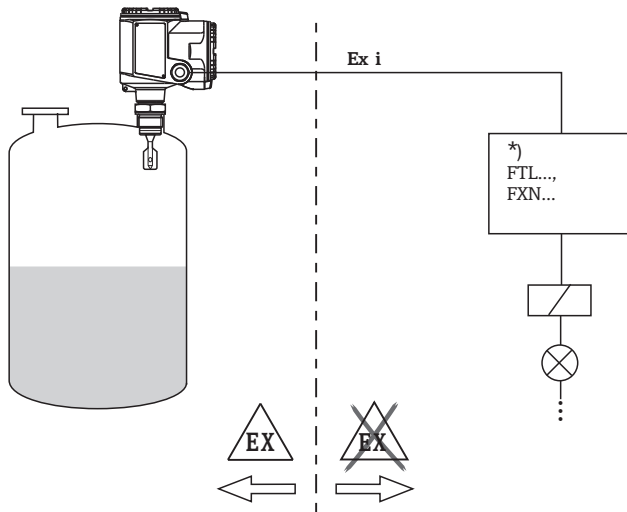


订货号:

FTL5# - # # # # # # # # # #



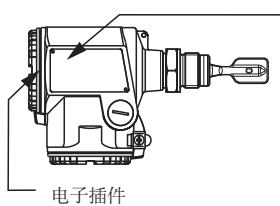
FEL55
FEL56
FEL57
FEL58



*) 开关单元、PLC、隔离放大器

ZH- 测量系统

连接 PROFIBUS PA

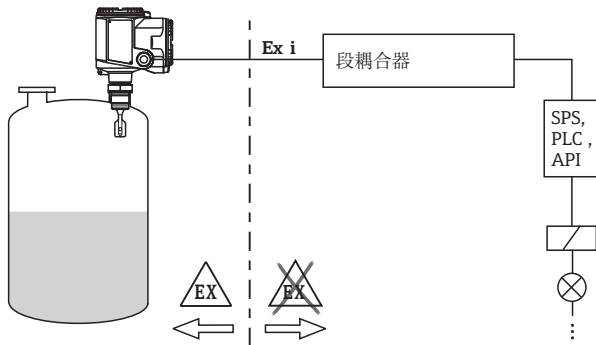


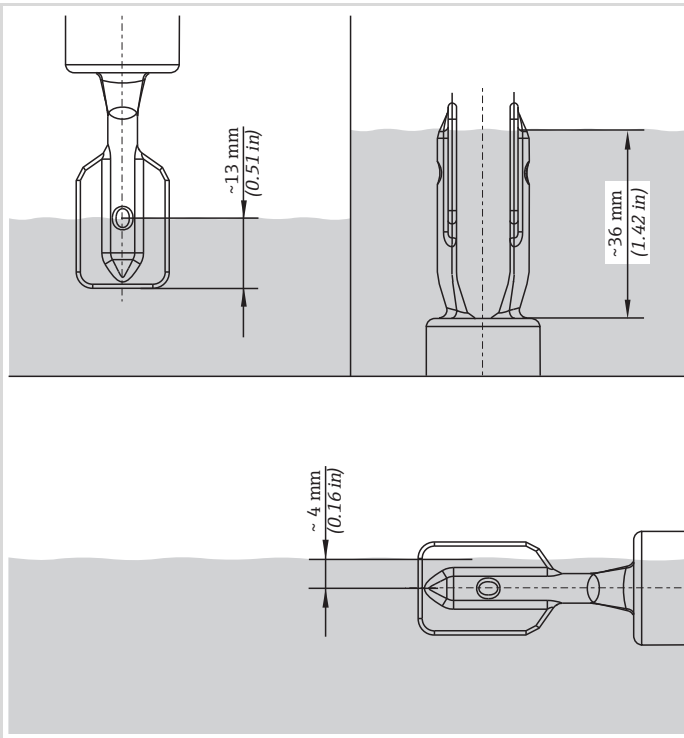
电子插件

订货号:

FTL5# - # # # # # # # # # #

FEL50 A



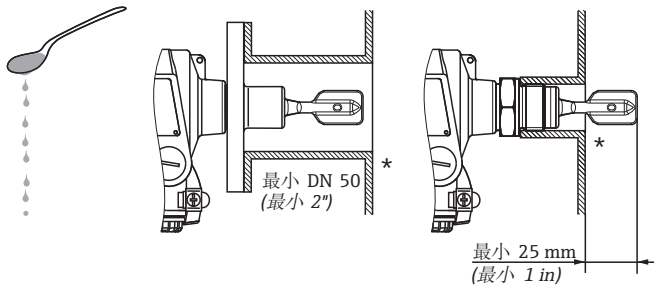


ZH- 安装

开关点取决于音叉液位开关的安装位置

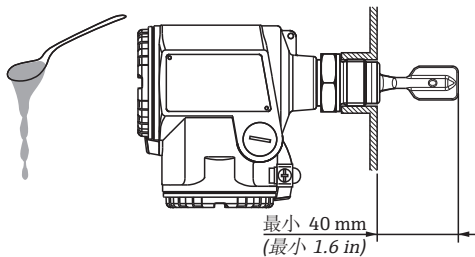
ZH- 安装实例
取决于液体粘度 ν

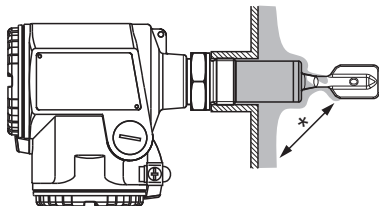
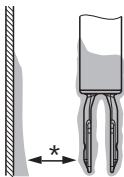
$\nu = 0 \dots 2000 \text{ mm}^2/\text{s}$
($\nu = 0 \dots 2000 \text{ cSt}$)



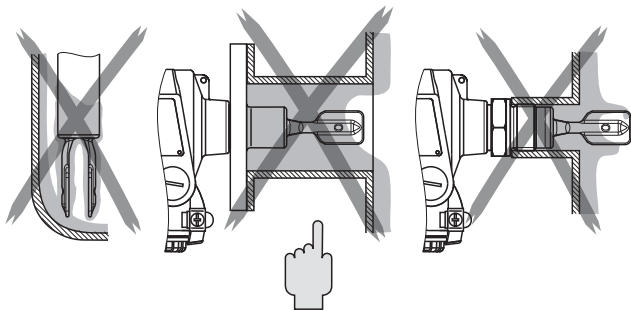
*去除毛刺

$\nu = 0 \dots 10000 \text{ mm}^2/\text{s}$
($\nu = 0 \dots 10000 \text{ cSt}$)



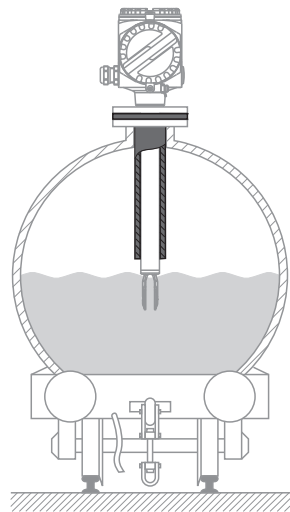
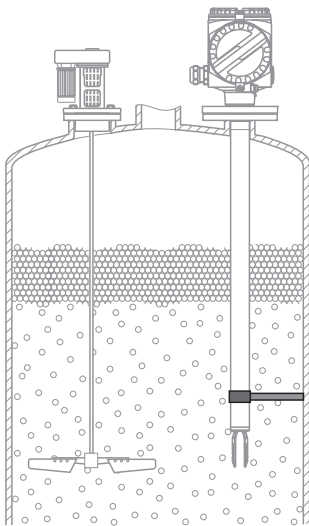


*保持充足间距!

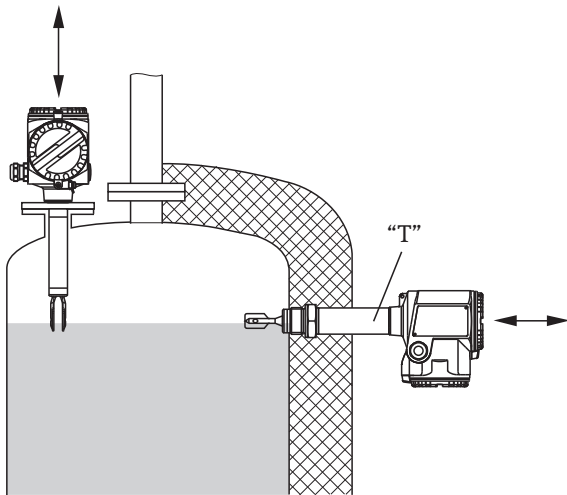


ZH- 考虑介质粘附。
避免叉体接触粘附。

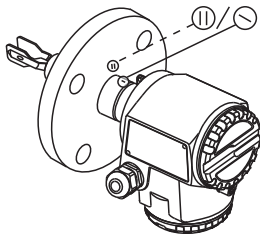
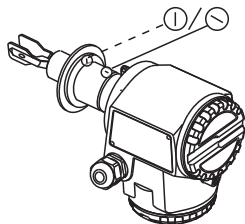
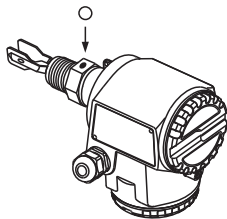
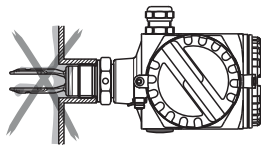
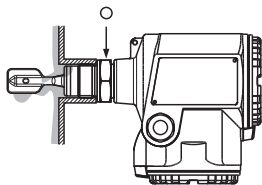
ZH- 存在动态负载时，应支撑设备



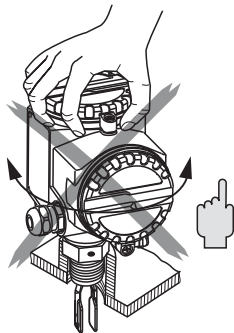
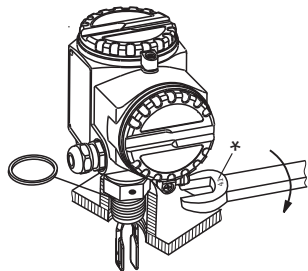
“T” = 选配隔热管，适合安装在带保温层的罐体上



ZH- 叉体安装方向:
标记朝上或朝下

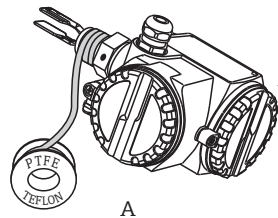


G $\frac{3}{4}$, 32 mm (1 $\frac{1}{4}$ "*)
G 1, 41 mm (1 $\frac{5}{8}$ "*)

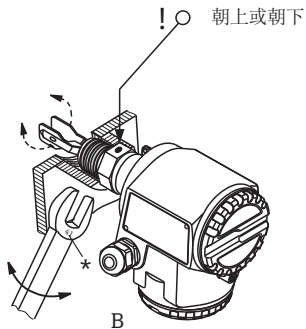


ZH- 将 Liquiphant 拧入过程
连接中。
禁止握住外壳转动。

NPT $\frac{3}{4}$, R $\frac{3}{4}$, G $\frac{3}{4}$, 32 mm (1 $\frac{1}{4}$ "*)
NPT 1, R 1, G 1, 41 mm (1 $\frac{5}{8}$ "*)

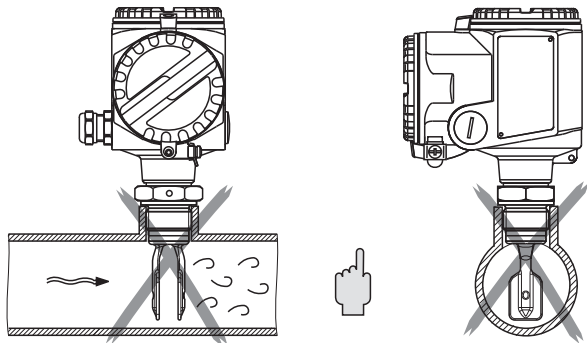
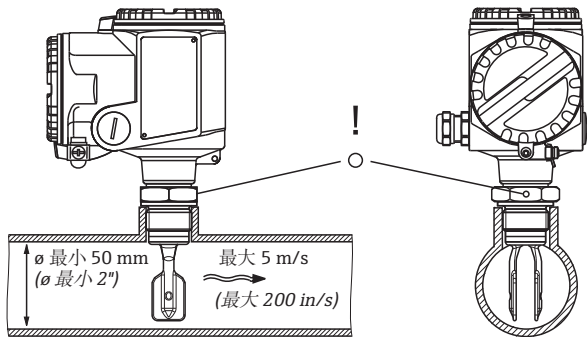


A

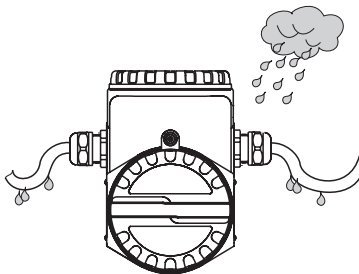
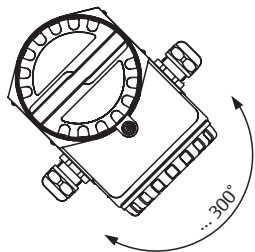
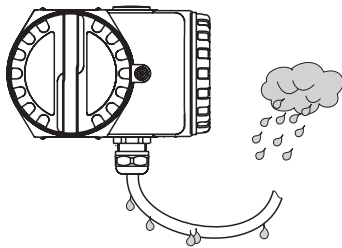
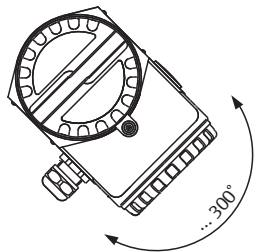


B

ZH- 安装在管道中时的叉体安装方向:
标记与介质流向一致



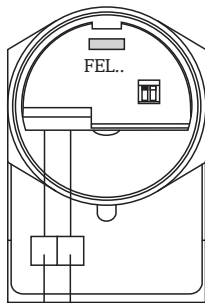
ZH- 缆塞的安装方向



ZH- 设置
打开电子腔

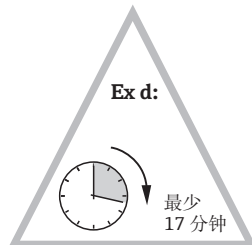
①.

FTL50, FTL51

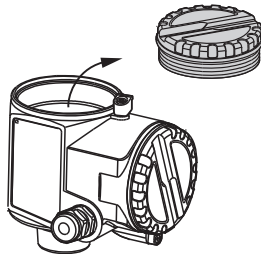


U = 0 V

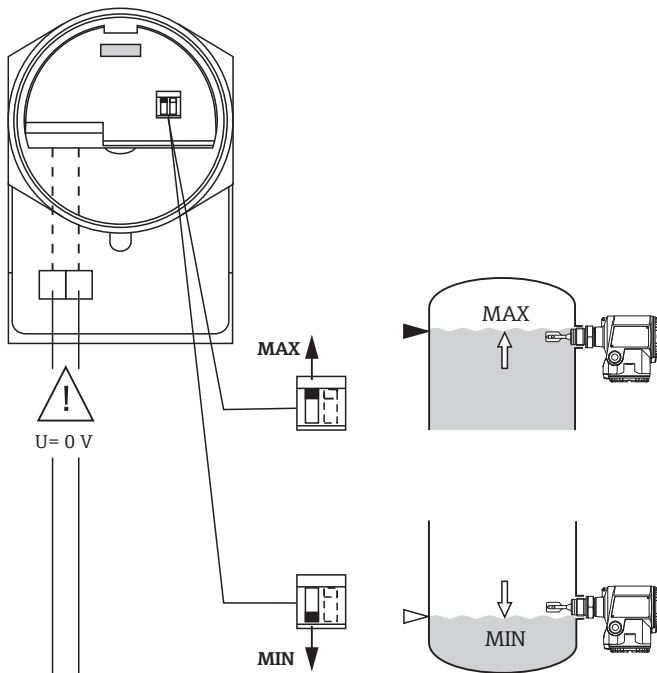
②.



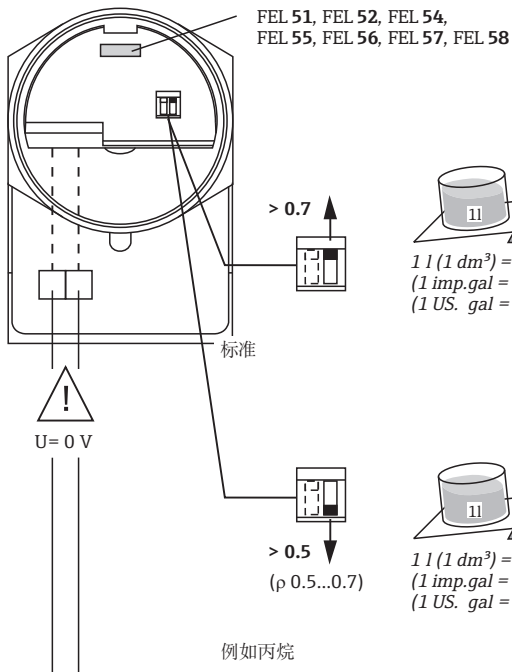
③.



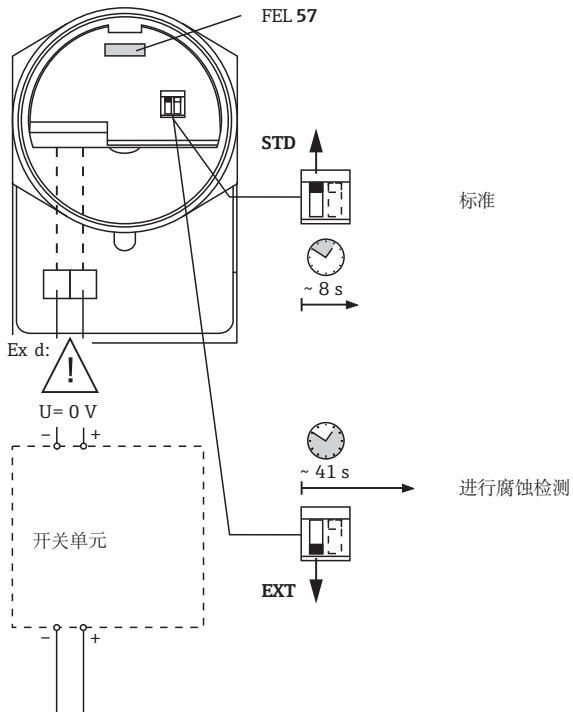
ZH- 高限 (MAX) / 低限 (MIN)
检测模式



ZH- 测量液体密度。
 密度 ρ 测量值单位为 g/cm^3
 或 kg/l 。



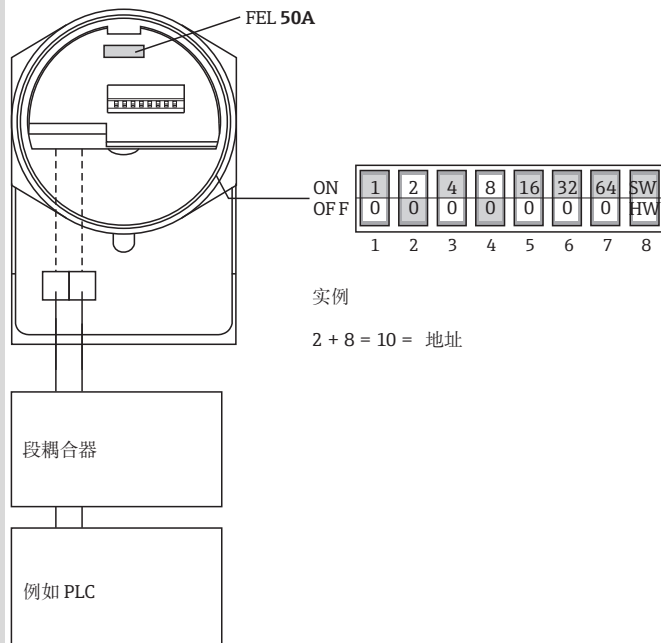
ZH-FEL57 的自检操作
(操作步骤参见第 46 页、
第 47 页和开关单元)

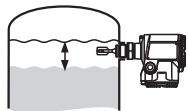


标准

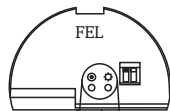
进行腐蚀检测

ZH- 设置设备地址
(参数设置的详细信息
参见 BA141F)





液位波动



绿色 红色 (黄色)

LED 指示灯



待机



开关状态



FEL57、FEL50A: 叉体被介质覆盖



亮起



闪烁



熄灭

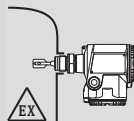


输出信号

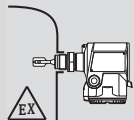


故障

ZH- 指示灯信号



检查



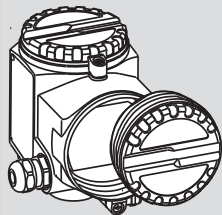
ZH- 连接

* 电缆入口

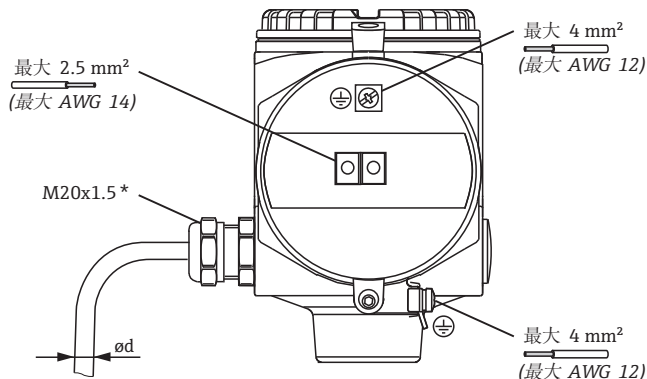
镀镍黄铜:

直径 $\varnothing d = 7 \dots 10.5 \text{ mm}$

(0.28...0.41 in)



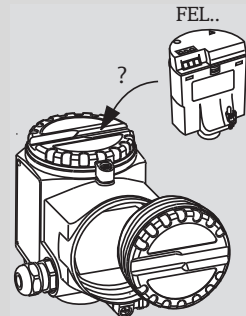
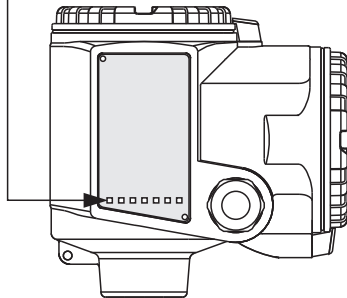
注意国家法规!



ZH- 内置电子插件

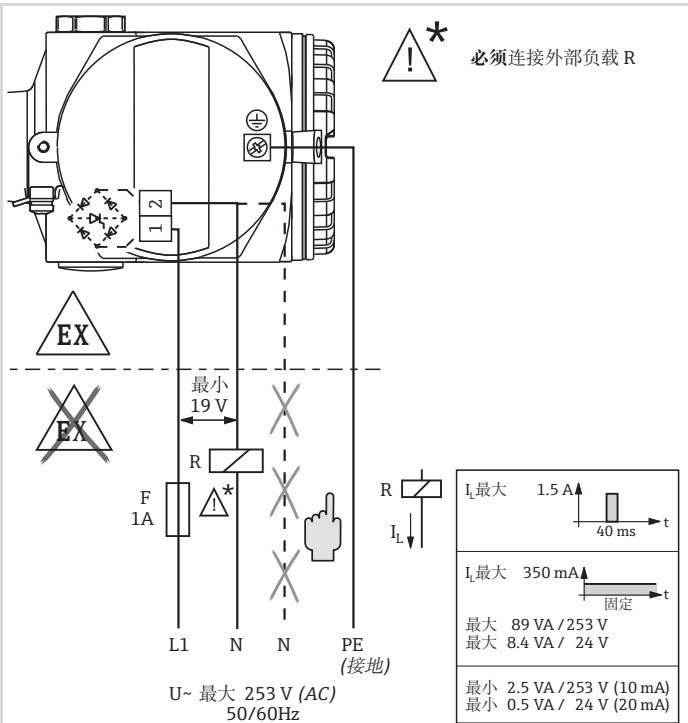
参见铭牌

☒ FEL..



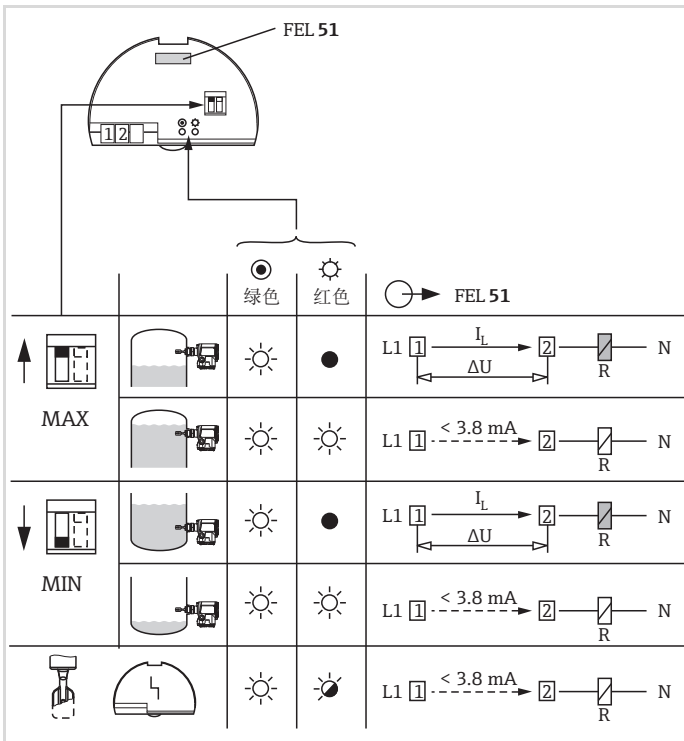
ZH-FEL51 接线图

两线制连接，交流供电型



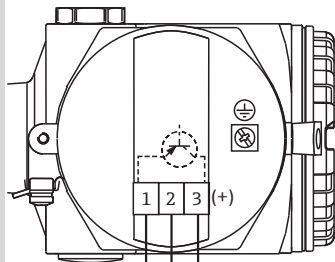
损坏设备

ZH- FEL51 功能示意图



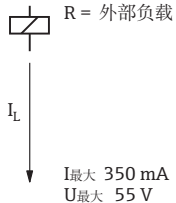
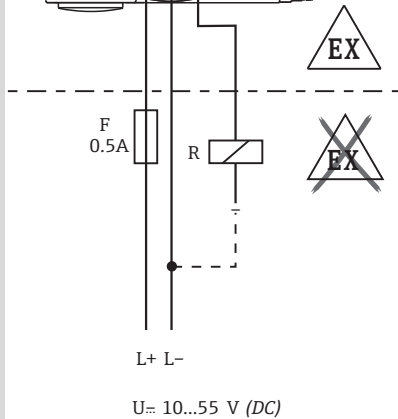
ΔU_{FEL51} 不超过 12 V

ZH-FEL52 接线图
直流连接型 (PNP)

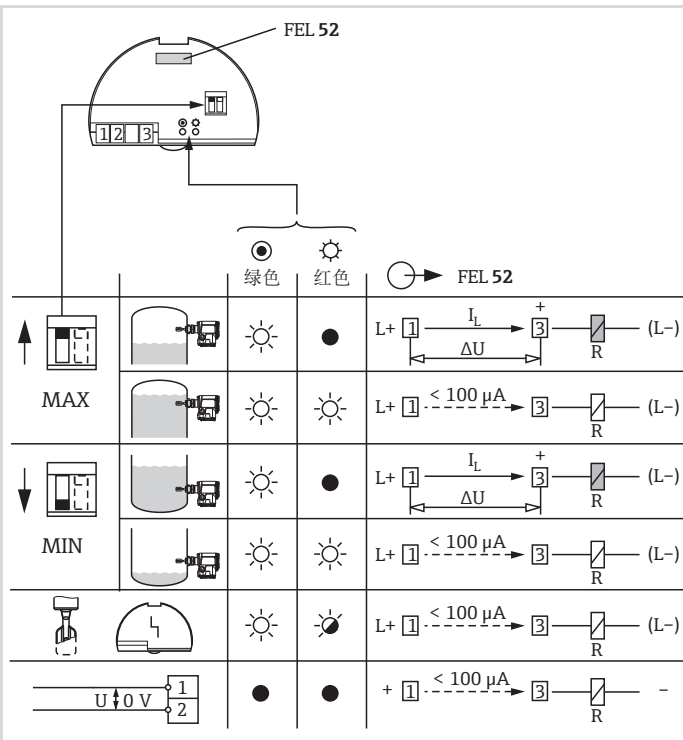


同时适用数字量输入模块

EN 61131-2

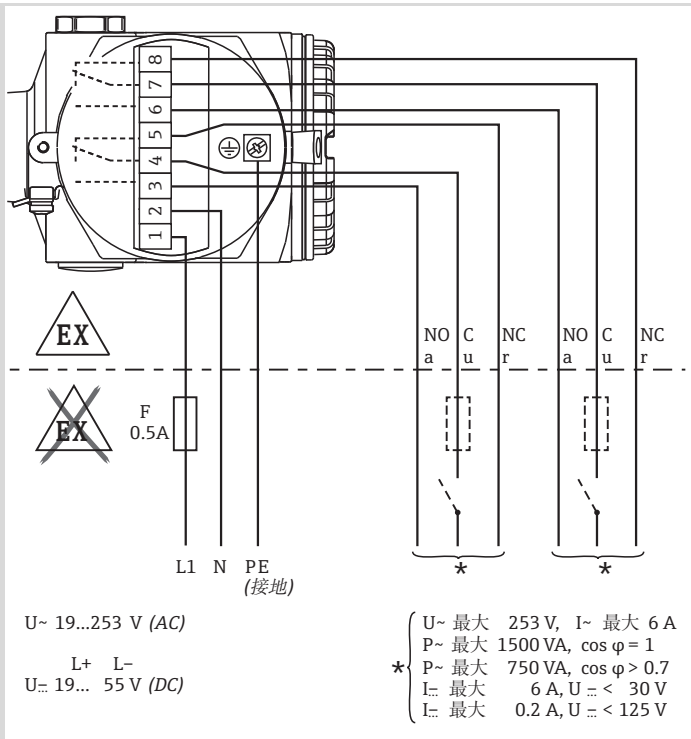


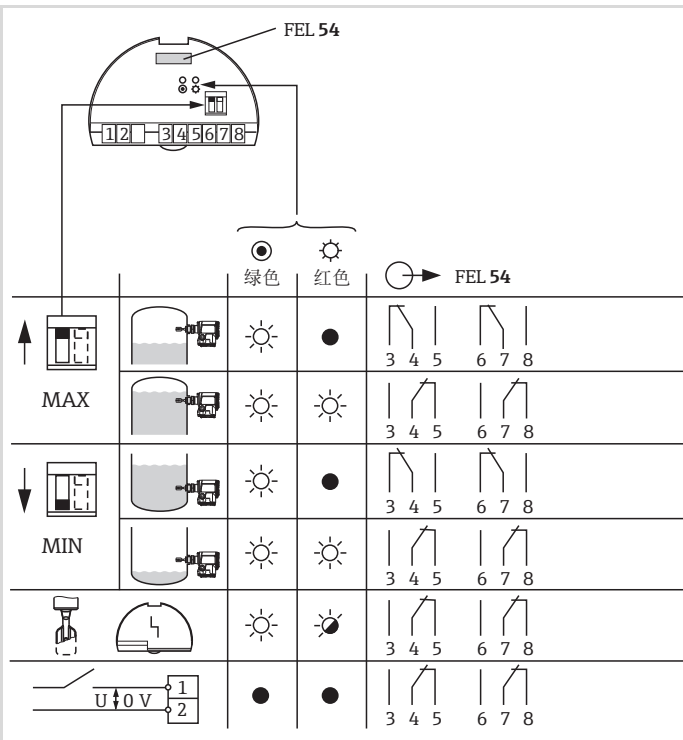
ZH- FEL52 功能示意图



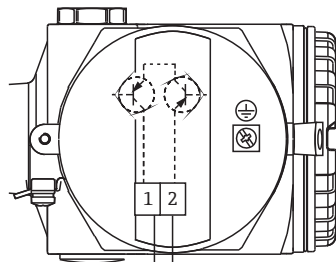
ΔU_{FEL52} 不超过 3 V

ZH-FEL54 接线图
通用电流连接型
继电器输出





ZH-FEL55 接线图
8/16 mA 输出
 * 适用潮湿地区。



- + Ex ia



F T 50 mA

非防爆应用场合：
 必须安装保险丝！
 仅允许使用带安全电气隔离的供电
 单元，例如安全特低电压（SELV）
 供电单元！



- +

- +

- +

- +

- +

- +

- +

- +

- +

- +

- +

- +

- +

- +

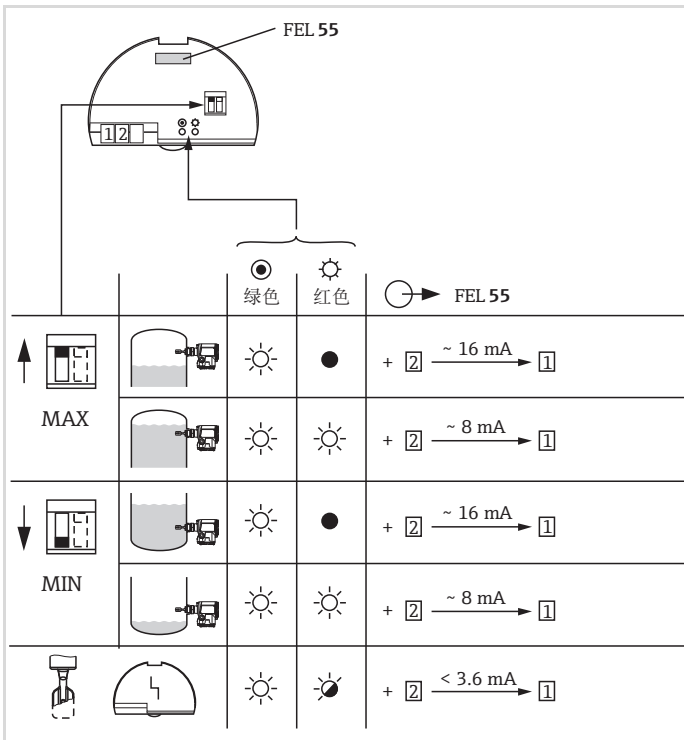
$$R_{\text{最大}} = \frac{U - 11 \text{ V}}{16.8 \text{ mA}}$$

**PLC、
 模拟量输入模块等**

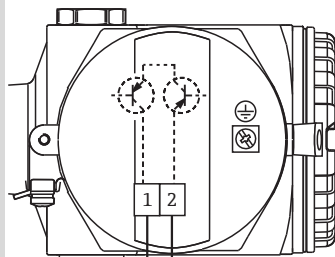
U= 11...36 V (DC)

U= 11...35 V (DC) *

**4...20 mA
 EN 61131-2**



ZH-FEL56 接线图
NAMUR 输出,
上升沿触发 (L-H)
< 1.0 mA / > 2.2 mA



EEx ia



H 2.2...2.8 mA
L 0.6...1.0 mA

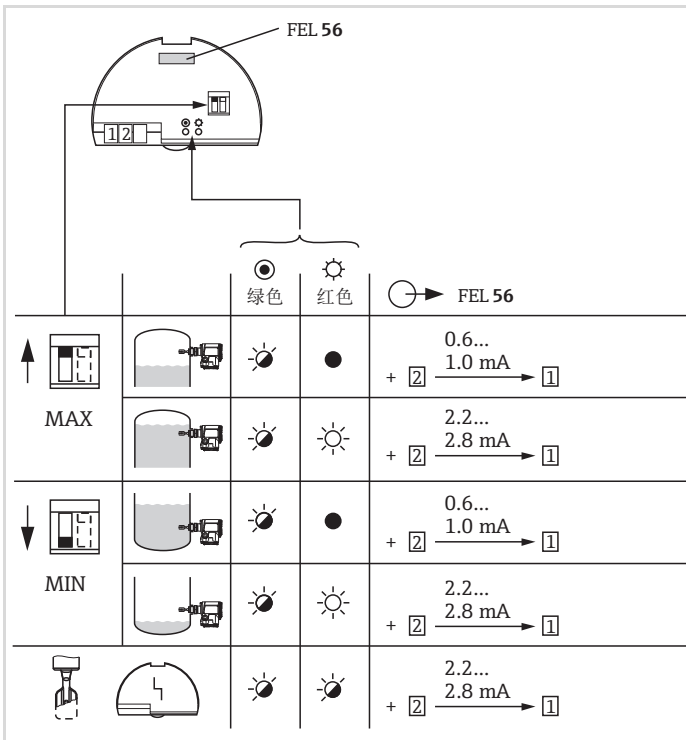
NAMUR 信号隔离放大器
(符合 IEC 60947-5-6 标准)

例如
FXN421, FXN422, SIN100, SIN110,
FTL325N, FTL375N

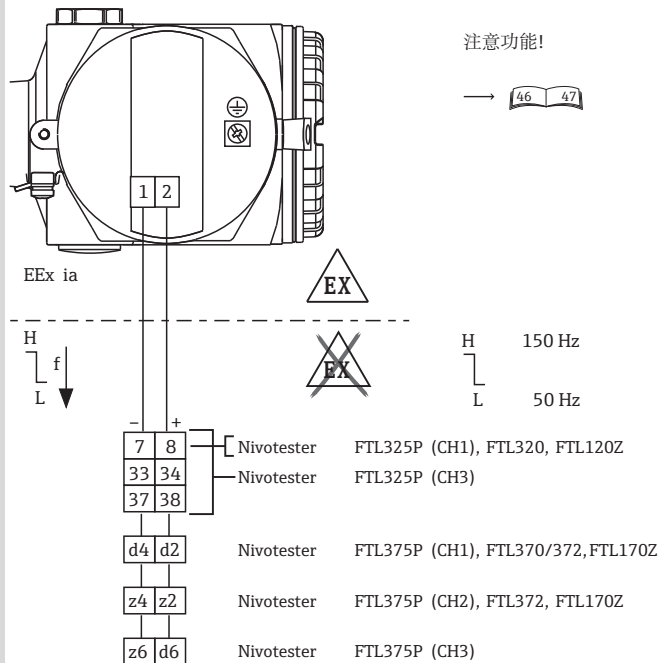
多路复用器: 最小脉冲宽度为 2 秒

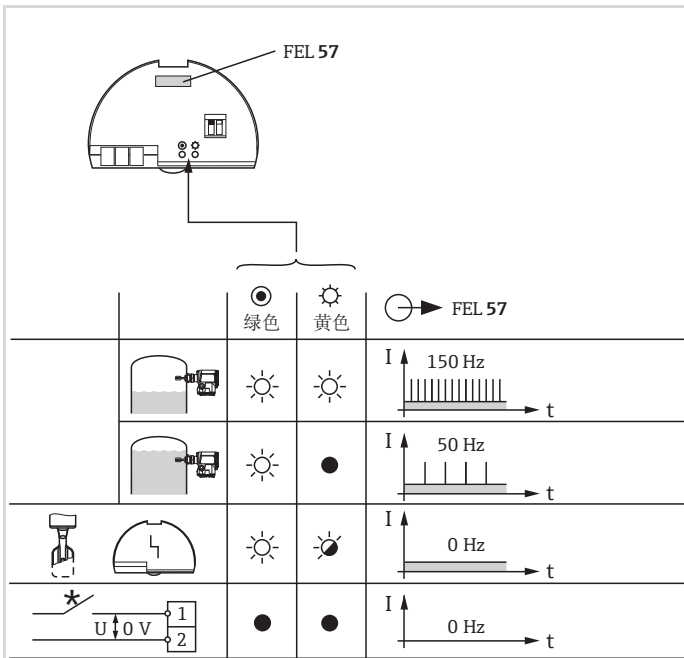
电源

供电电压: 8.2 VDC +/- 20%



ZH-FEL57 接线图
PFM 输出
150 Hz / 50 Hz



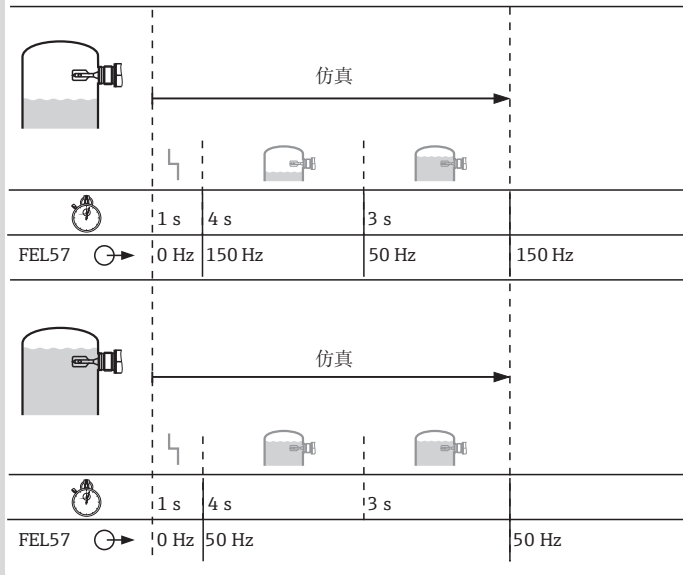
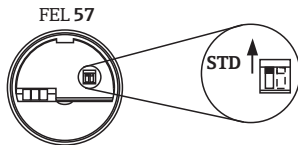


* 上电时的响应状态

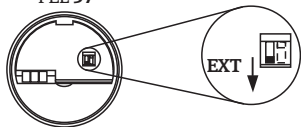
→ 

ZH-FEL57 功能示意图

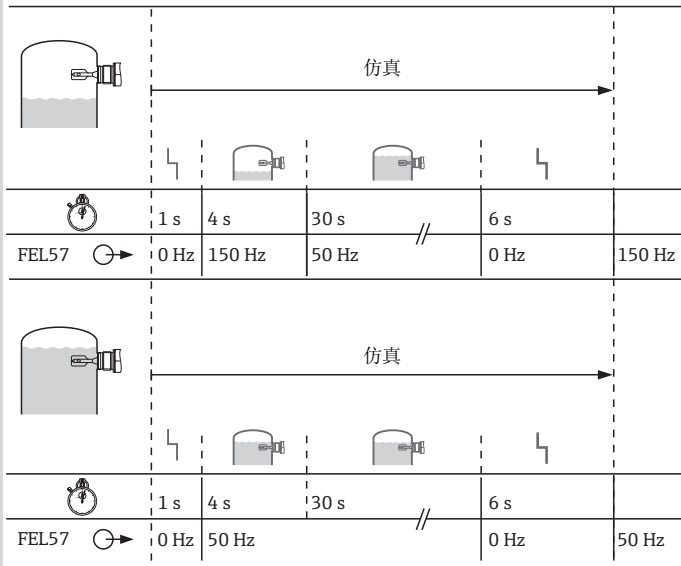
上电时的响应状态 (STD)



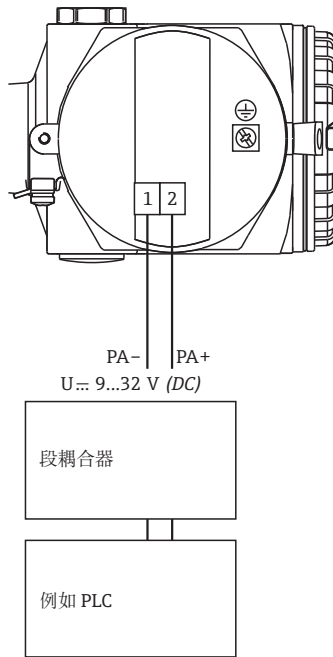
FEL 57

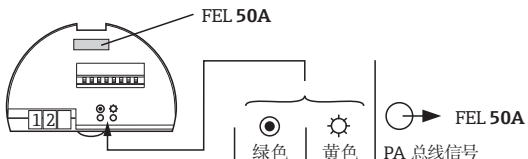























ZH- FEL57 功能示意图 上电时的响应状态 (EXT)



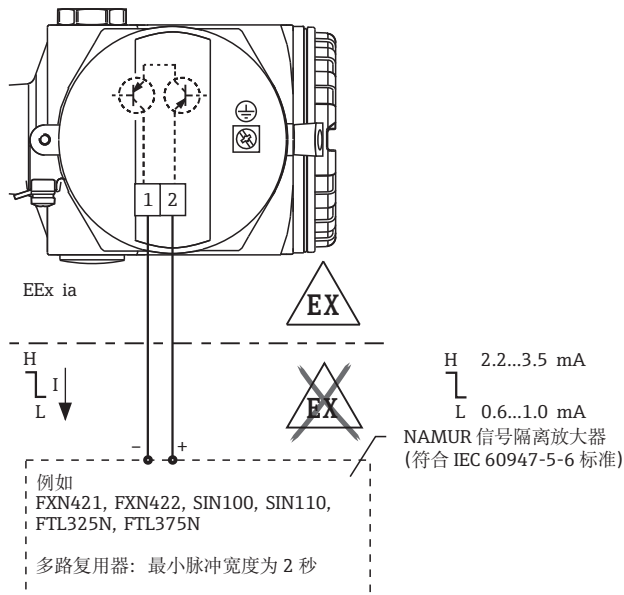
ZH- FEL50A 接线图



		绿色	黄色	PA 总线信号
不切换开关状态				OUT_D = 0
				OUT_D = 1
切换开关状态				OUT_D = 0
				OUT_D = 1
 ↔ SPS Commuwin II			-	通信
 		-		响应状态参见 BA141F
 U 0 V 				../..

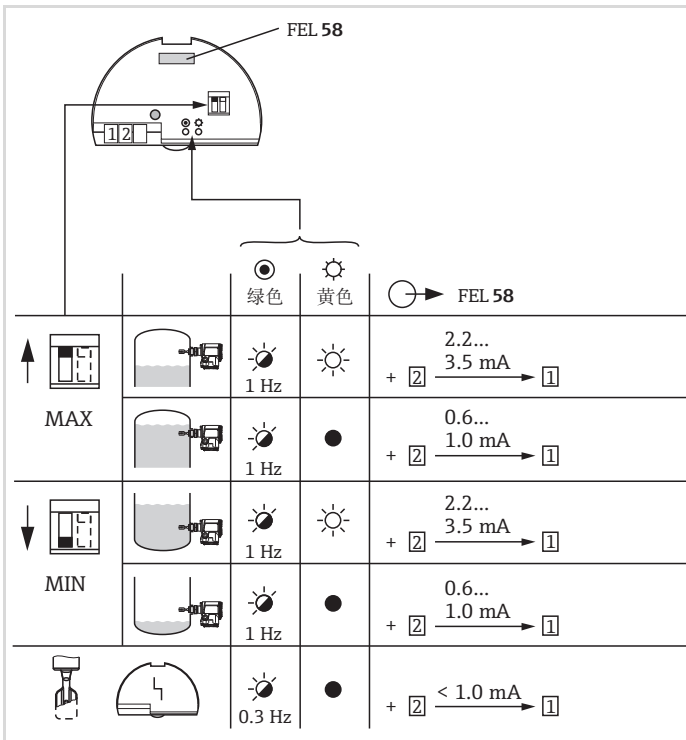
ZH-FEL58 接线图

NAMUR 输出,
下降沿触发 (H-L)
> 2.2 mA / < 1.0 mA



电源

供电电压: 8.2 VDC +/- 20%



ZH-FEL58 的功能测试按钮 高限 (MAX) 检测模式

MAX  + 



1. 正常工作

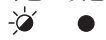
绿色 黄色



1 Hz

+ 2.2...
3.5 mA → 1

绿色 黄色



1 Hz

+ 0.6...
1.0 mA → 1

2. 按下测试按钮



绿色 黄色



+ 0 mA → 1

绿色 黄色



+ 0 mA → 1

3. 进入正常工作状态约 2 秒后
松开测试按钮



绿色 黄色



1 Hz

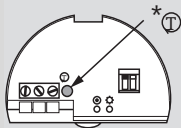
+ 2.2...
3.5 mA → 1

绿色 黄色




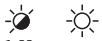





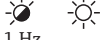
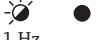


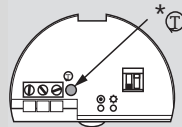
1 Hz

+ 0.6...
1.0 mA → 1



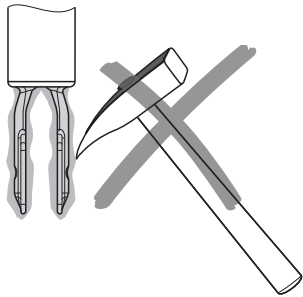
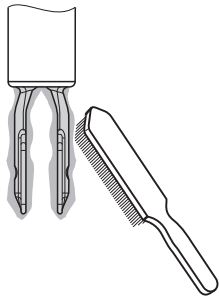
ZH-FEL58 的功能测试按钮 低限 (MIN) 检测模式

 <p>MIN</p>		
<p>1. 正常工作</p>	<p>绿色 黄色  1 Hz + 2.2... 2 3.5 mA → 1</p>	<p>绿色 黄色  1 Hz + 0.6... 2 1.0 mA → 1</p>
<p>2. 按下测试按钮</p>  <p>>3 s</p>	<p>绿色 黄色  + 0 mA 2 -----> 1</p>	<p>绿色 黄色  + 0 mA 2 -----> 1</p>
<p>3. 进入正常工作状态约 2 秒后 松开测试按钮</p> 	<p>绿色 黄色  1 Hz + 2.2... 2 3.5 mA → 1</p>	<p>绿色 黄色  1 Hz + 0.6... 2 1.0 mA → 1</p>

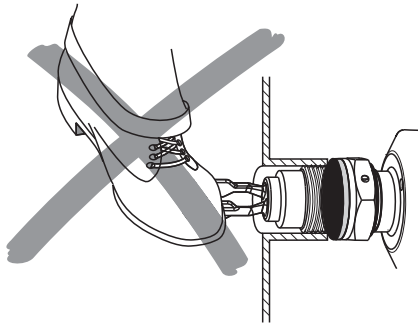


ZH- 维护和清洁

清除严重介质粘附



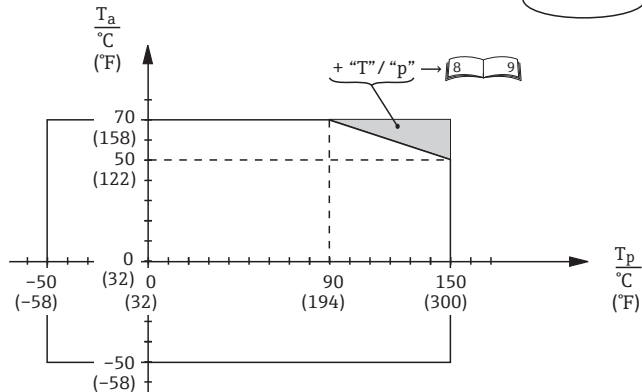
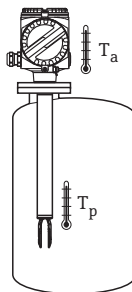
禁止踩踏叉体!



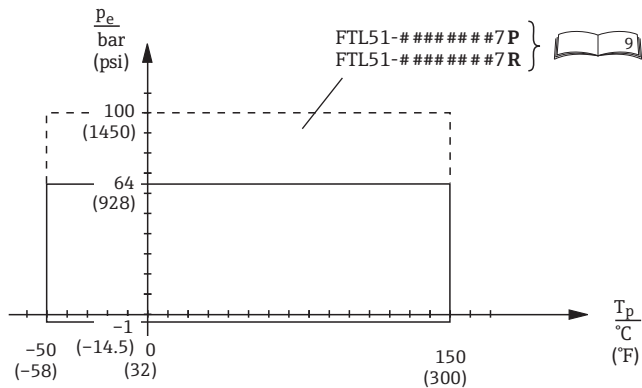
ZH- 技术参数

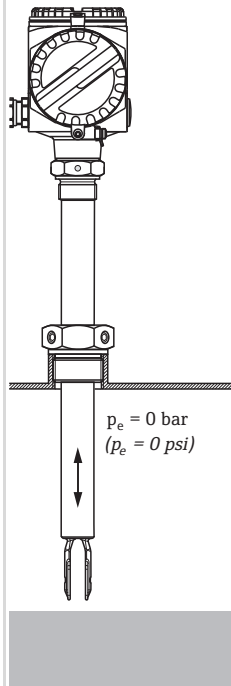
环境温度 T_a

过程温度 T_p



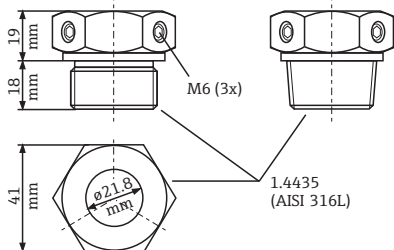
ZH- 过程压力 p_e
过程温度 T_p





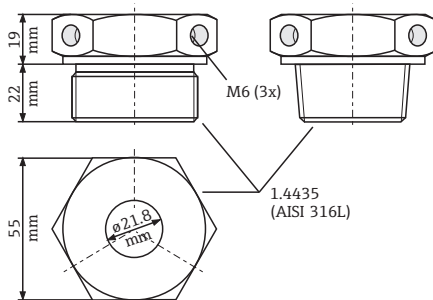
G 1
52003978

NPT 1
52003979



G 1½
52003980

NPT 1½
52003981



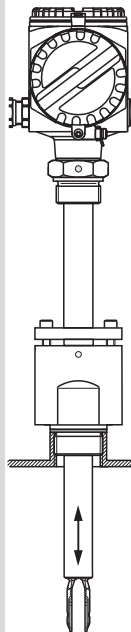
ZH- 附件
常压
滑动套管

参见:

- KA00151F (G 1, NPT 1)
- KA00152F (G 1½, NPT 1½)
- TI00328F FTL50(H)、FTL51(H)
- TI00354F FTL70、FTL71

100 mm = 3.94 in

ZH- 高压滑动套管



参见:

KA00153F (G 1、NPT 1)

KA00154F (G 1½、NPT 1½)

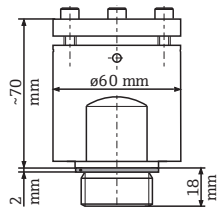
TI00328F FTL50(H)、FTL51(H)

TI00354F FTL70、FTL71

100 mm = 3.94 in

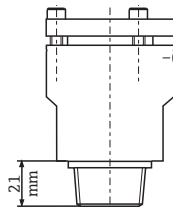
G 1

1.4435 (AISI 316L)
52003663



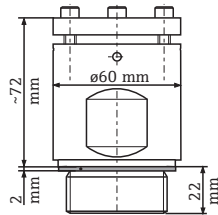
NPT 1

1.4435 (AISI 316L)
52003667



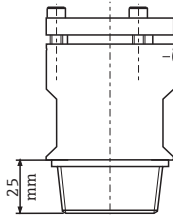
G 1½

1.4435 (AISI 316L)
52003665

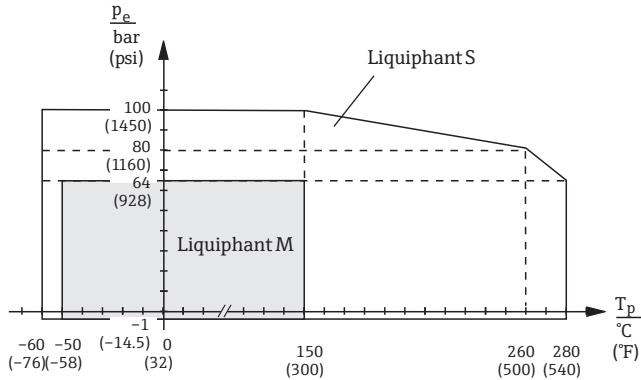


NPT 1½

1.4435 (AISI 316L)
52003669



ZH- 高压滑动套管:
过程压力 p_e
过程温度 T_p



ZH- 故障排除

故障	原因	补救措施
开关不动作	未接通电源	检查电源
	信号线故障	检查信号线
	电子插件故障 - FEL51 直接连接至 L1 和 N	更换 - 始终通过外部负载连接 FEL51
	液体密度太低	在电子插件上将密度设置为不低于 0.5
	叉体上存在介质粘附	清洁叉体
	叉体被腐蚀 (FEL 上的指示灯: 红 - 黄交替闪烁, FEL58 上的指示灯: 以 0.3 Hz 频率绿色 闪烁)	更换叉体和过程连接
	FEL51: 连接继电器的内部电阻过大	连接合适的继电器
	FEL51: 连接继电器的保持电流过小	将电阻与继电器并联
	FEL54: 继电器触点烧熔 (短路后)	更换 FEL54; 在触点回路中安装保险丝
错误开关动作	高限 (MAX) / 低限 (MIN) 检测模式 设置错误	在电子插件上设置正确的故障安全模式
偶尔出现开关 动作不正确	介质中夹杂大量气泡、 强扰动工况、 测量起泡液体介质	Liquiphant 安装在旁路管道中
	存在强射频干扰	使用屏蔽电缆
	处于强振动环境	拆下设备, 采取减振措施, 并转动 叉体 90°
	外壳进水	拧紧外壳盖和缆塞
	FEL52: 输出过载	降低负载大小和 (电缆) 电容
断电恢复后 开关动作不正确	FEL57 正在进行上电自检 (功能测试)	注意 FEL57 的响应状态; 重新上电后, 系统约需要 45 秒才能正常工作

ZH- 故障排除补充信息

如果叉体的响应状态异常，在诊断插座的针脚 4 处测量叉体振动频率。

安装 FEL51、FEL52、FEL54、FEL55、FEL56、FEL57、FEL58 电子插件时，音叉进行正弦波振动，可基于振动幅值确定音叉状态。

安装 FEL50A 电子插件时，输出方波信号，此时才可测量叉体振动频率。

ZH- 备件

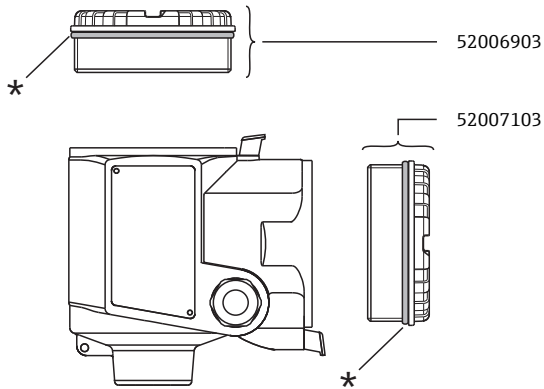
电子插件



FEL51	52002304
FEL52	52002305
FEL54	52002306
FEL55	52002307
FEL56	52002308
FEL57	52002309
FEL58	52006454
FEL50A	52010527

安装注意事项: 安装过程中, 切记不得将由非本安回路供电的电气部件 (电子插件) 串接至本安回路。

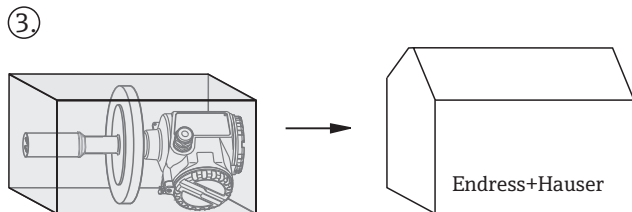
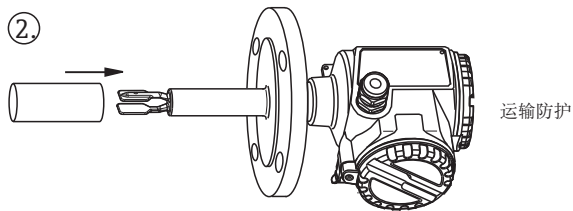
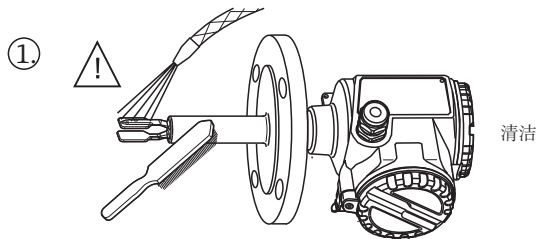
ZH- 外壳盖、
密封圈



* 使用硅润滑脂进行润滑

ZH- 维修

交由 Endress+Hauser 负责



技术资料

TI00328F Liquiphant FTL50、FTL50H、FTL51、FTL51H
TI00426F 焊座、过程转接头和法兰

操作手册

BA00141F FEL50A (PROFIBUS PA)

安全指南

XA00031F	CE	II 1/2 G,	Ex d	IIC/IIIB
XA00063F	CE	II 1/2 G, II 1/2 D,	Ex ia/ib	IIC/IIIB
XA00064F	CE	II 1 G,	Ex ia	IIC/IIIB
XA00108F	CE	II 1/2 G,	Ex de	IIC/IIIB
XA00113F	CE	II 1/2 G,	Ex ia/ib	IIC
XA00114F	CE	II 1/2 G,	Ex d	IIC
XA00115F	CE	II 1/2 G,	Ex de	IIC
XA00154F	CE	II 1/2 G, II 1/2 D,	Ex ia/ib	IIC/IIIB
XA00158F	CE	II 1/2 G,	Ex ia/ib	IIC
XA00159F	CE	II 1 G,	Ex ia	IIC/IIIB
XA00182F	CE	II 3 G, II 3 D,	Ex nA/nC	IIC/IIIC

ZH- 补充文档资料



71501642

www.endress.com/worldwide
