



Level



Pressure



Flow



Temperature



Liquid
Analysis



Registration



Systems
Components



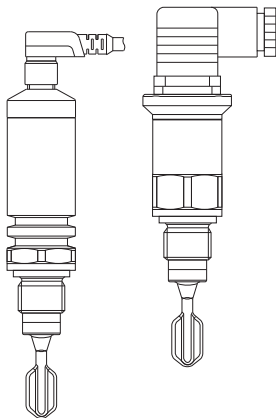
Services



Solutions

简明操作指南

Liquiphant T FTL20



限位开关

KA00213F/28/ZH/09.04
71122138

Endress+Hauser 

People for Process Automation

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小心！

= 禁止；

导致不正确操作或损坏。

安全指南

Liquiphant T FTL20 设计用于液体的限位检测。

使用不当可能会导致应用危险。

仅允许经授权的合格专业人员进行 Liquiphant T FTL20 的安装、电气连接、调试、操作和维护，必须严格遵守《操作手册》、相关标准、法律要求和证书 (取决于实际应用) 中的要求。

在设备附近安装易于操作的电源开关。

标识电源开关方便设备通断。

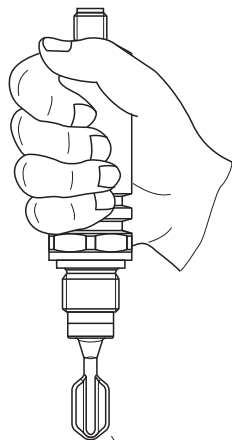
B	150 °C,	Pg 11, ISO4400,	IP65
C	150 °C,	NPT 1/2", ISO4400,	IP65
D	150 °C,	M12,	IP67
E	150 °C,	QUICKON,	IP65
0	100 °C,	Pg 11, ISO4400,	IP65
4	100 °C,	NPT 1/2", ISO4400,	IP65
5	100 °C,	M12,	IP67
6	100 °C,	QUICKON,	IP65
9	*2		

*1 非危险区
*2 其他

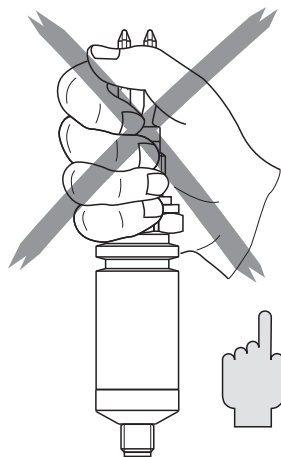
操作

握住外壳

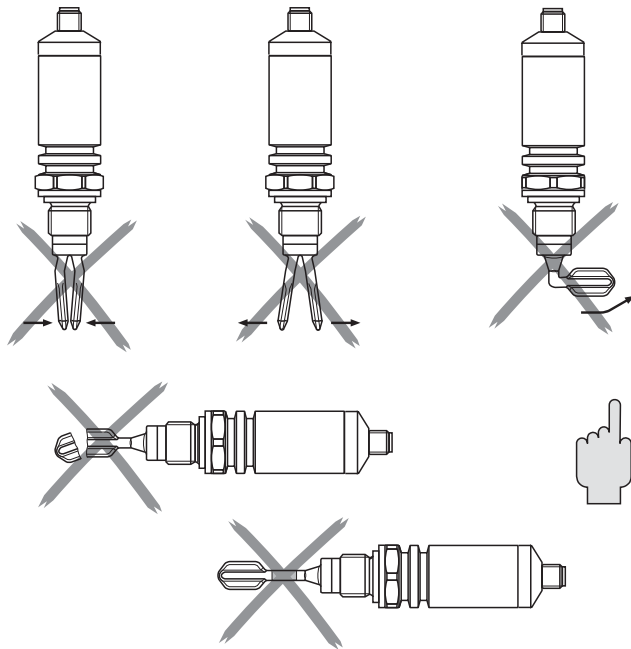
禁止握住传感器叉体



$Ra < 1.5 \mu m$



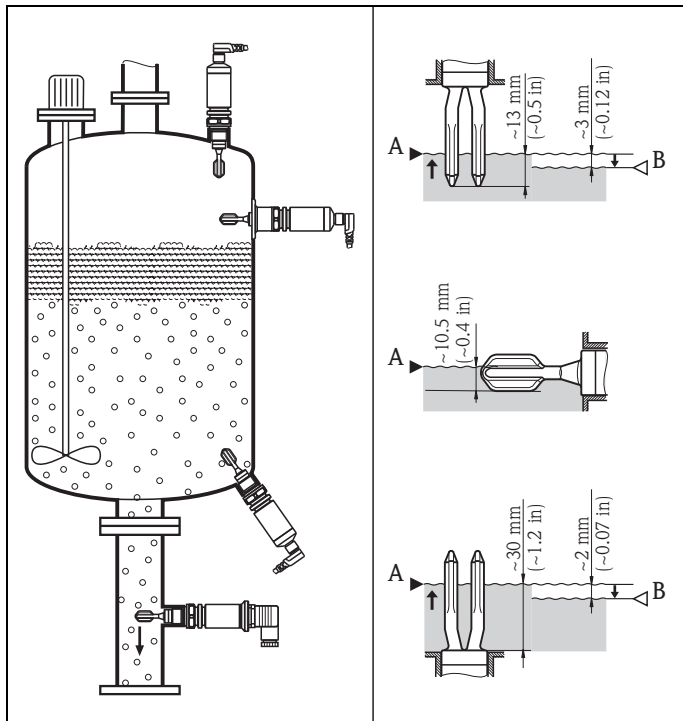
禁止弯曲
禁止截短
禁止拉伸



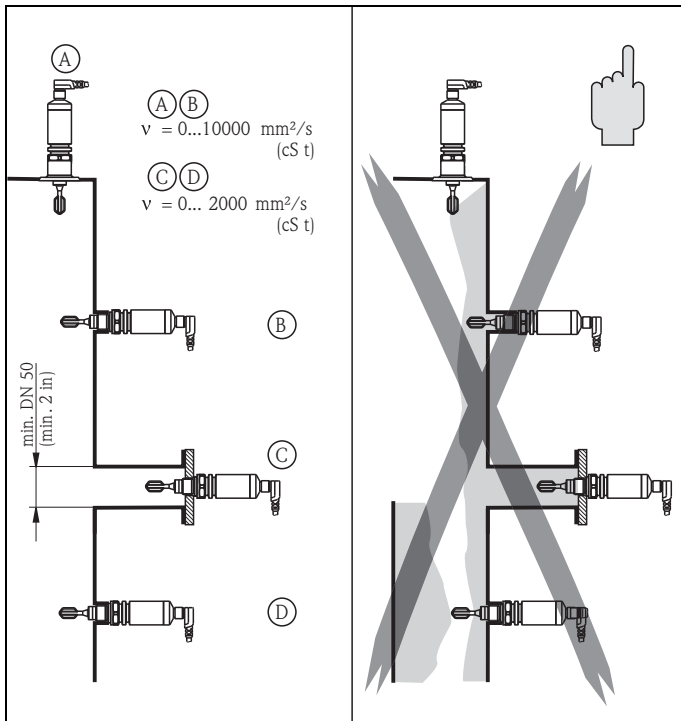
安装实例

A: 开关点

B: 开关迟滞性



考虑粘度和粘附

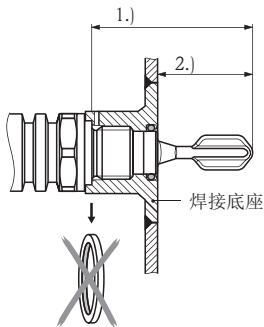


安装

过程连接

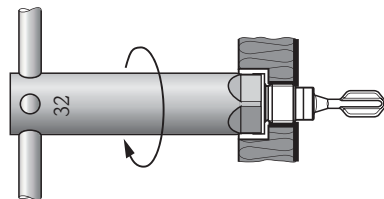
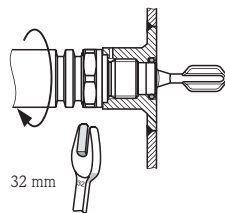
G ½ A、G ¾ A、G 1 A
(DIN ISO 228/1)

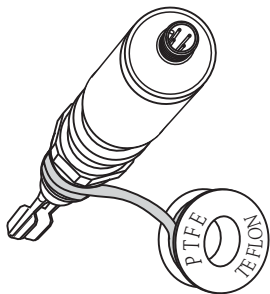
G ¾" => 1.) ~ 63.9 mm (~ 2.6 in) 2.) ~ 38.0 mm (~ 1.5 in)
G 1" => 1.) ~ 78.0 mm (~ 3.7 in) 2.) ~ 48.0 mm (~ 1.9 in)



max. 150 °C / 25 bar
(max. 300 °F / 360 psi)

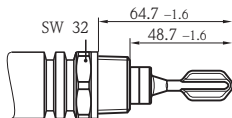
max. 100 °C / 40 bar
(max. 210 °F / 580 psi)





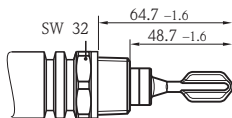
1/2 NPT (316L): max. 40 bar
max. 150 °C

3/4 NPT (316L): max. 40 bar
max. 150 °C



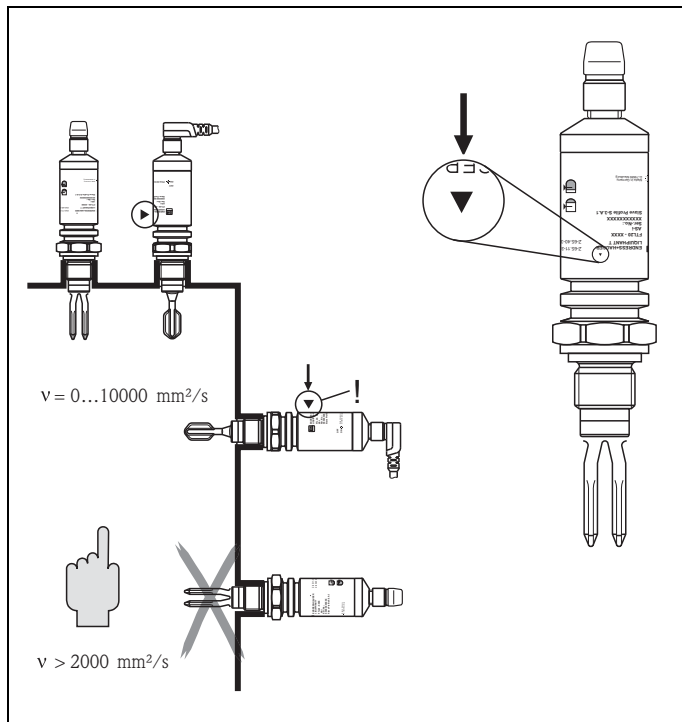
R 1/2 (316L): max. 40 bar
max. 150 °C

R 3/4 (316L): max. 40 bar
max. 150 °C



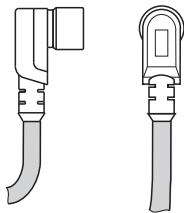
NPT 1/2"、3/4"
ANSI B 1.20.1
R 1/2"、3/4"
DIN 2999

对准传感器叉体
注意标记 ▼

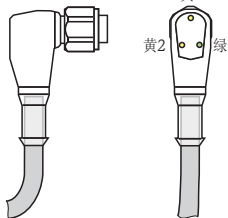


电气连接 M12x1 插头

52010285



52018763



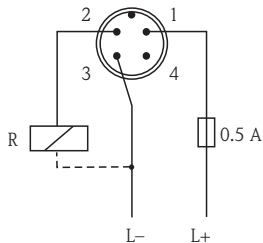
数字 = 颜色

- | | | | | |
|---|---|----|---|----|
| 1 | = | BN | = | 棕色 |
| 2 | = | WT | = | 白色 |
| 3 | = | BU | = | 蓝色 |
| 4 | = | BK | = | 黑色 |

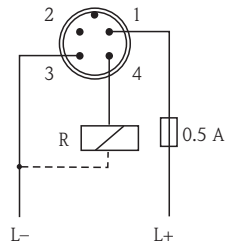
直流 (DC) 连接 (PNP)

M12x1 插头

高限(MAX)



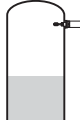
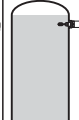
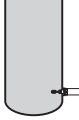
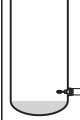
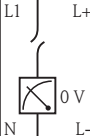
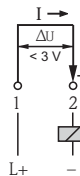
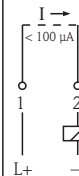
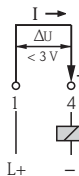
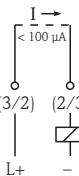
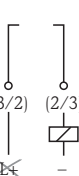
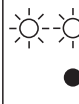
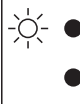
低限(MIN)



R = 外部负载

I max. 250 mA
U = 10...35 V

1: 棕
2: 白
3: 蓝
4: 黑

	高限(MAX)		低限(MIN)			
					故障	
U... (DC)						
 (PNP)						
						
						

功能

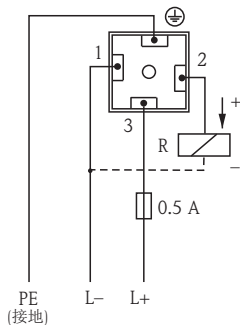
 亮起

 闪烁

 熄灭

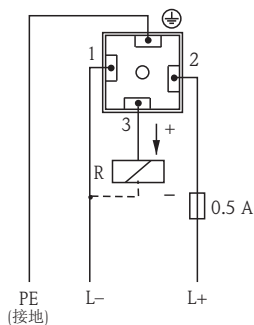
直流 (DC) 连接 (PNP) 转接头

高限(MAX)

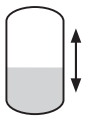
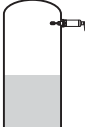
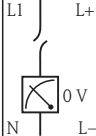
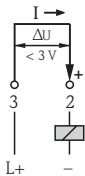
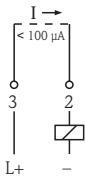
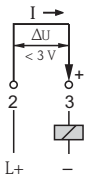
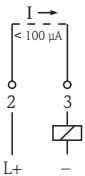
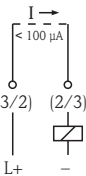
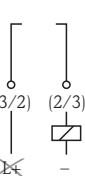
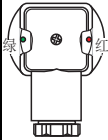


R = 外部负载

低限(MIN)

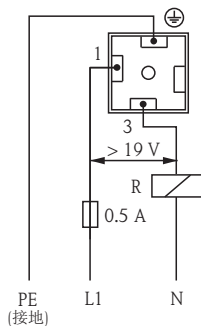


I max. 250 mA
U = 10...35 V

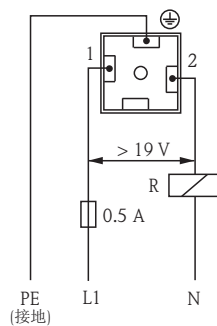
	高限(MAX)		低限(MIN)			
					故障	
U... (DC)						
 (PNP)						
						
 = 亮起  = 闪烁  = 熄灭						

交流 (AC) 连接 转接头

高限(MAX)



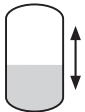
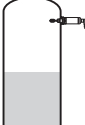
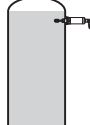
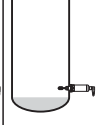
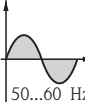
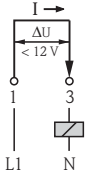
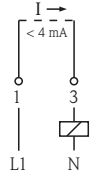
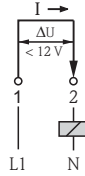
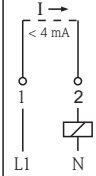
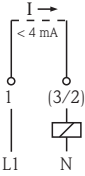
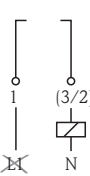
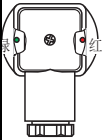
低限(MIN)



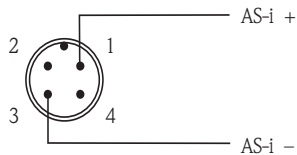
R = 外部负载

I max. 250 mA
U – 19...253 V DC

min. 2.5 VA / 253 V (10 mA)
min. 0.5 VA / 24 V (20 mA)

	高限(MAX)		低限(MIN)		故障		
					故障	L1	L+
							L-
							
	N						L-
U~ (AC)							
 50...60 Hz							
							
	 = 亮起  = 闪烁  = 熄灭						

AS-i 总线连接



1: 棕
3: 蓝

AS-i型: S-3.A.1 (EN 50295、IEC 62026-2)

地址设置为0 (HEX): 通过总线主设备或用组态设置设备可以更改地址

数据位: 不使用参数位(P0...P3)

D0 : 1		D1 : 1	状态	正常
D0 : 0		D1 : 0	状态	故障
不使用D2和D3				

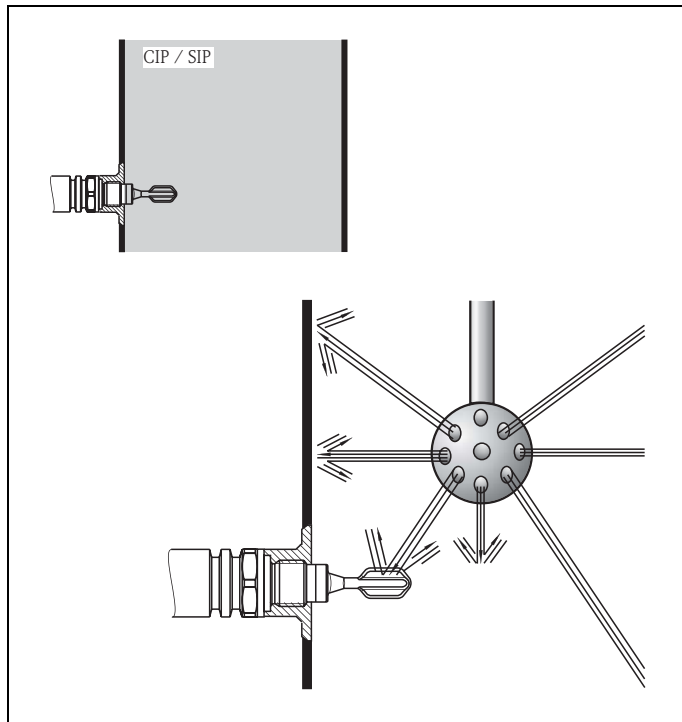
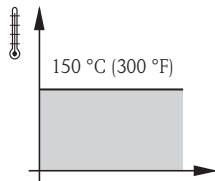
测试 使用开关磁铁



必须确保不会引发危险操作。

高限(MAX) 	1. →
低限(MIN) 	1. →
高限(MAX) 	1. →
低限(MIN) 	2.

AS-i:
D0 翻转

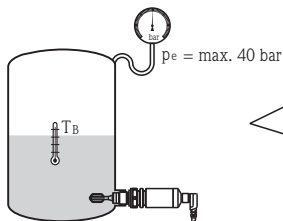
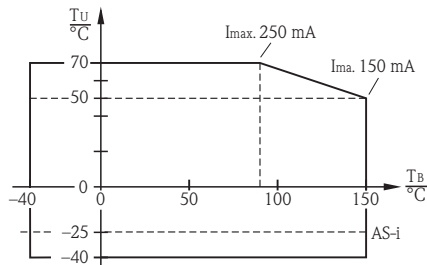
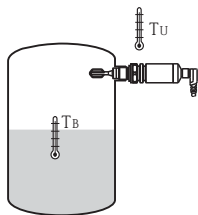


技术参数

环境温度 T_U

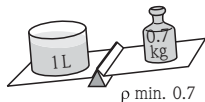
工作温度 T_B

工作压力 p_e

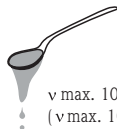


过程连接

密度 ρ

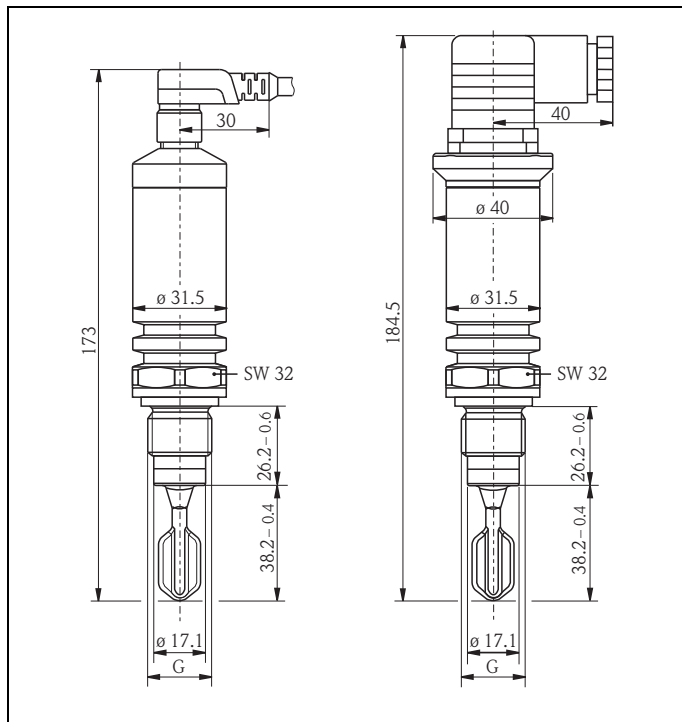


粘度 ν



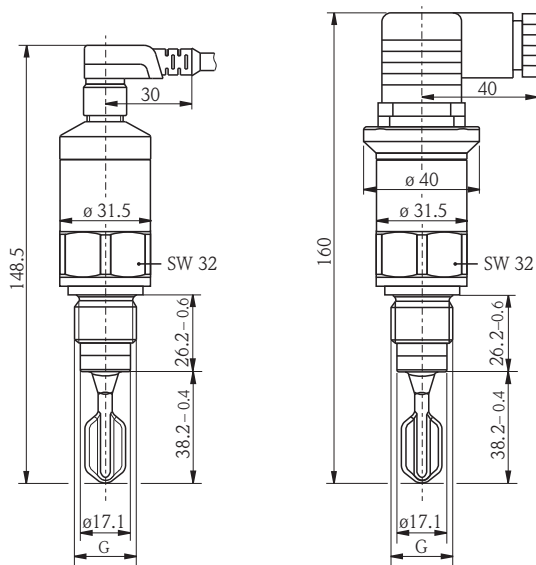
$$x^{\circ}\text{C} = (1.8x + 32)^{\circ}\text{F} / 1 \text{ bar} = 14.5 \text{ psi}$$

150 °C 型外形尺寸 (单位: mm)



100 mm = 3.94 in

100 °C 型外形尺寸 (单位: mm)



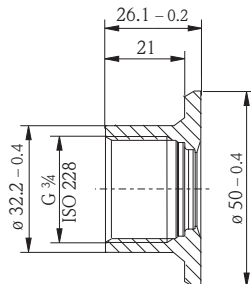
100 mm = 3.94 in

附件和备件

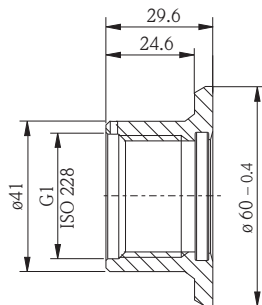
单位: mm

焊接底座

G $\frac{3}{4}$
52018765



G 1
52001051

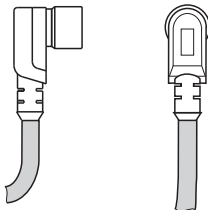


100 mm = 3.94 in

电缆
4 x 0.34

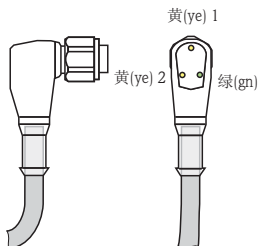
52010285

1.) M12插头，弯头



52018763

2.) 带M12插槽(+ LED)



附件和备件

单位: mm

100 mm = 3.94 in

附件和备件

密封圈

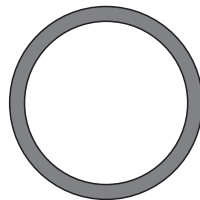
FPM O型圈，适用于焊接底座

G ¾
52018765

G 1
52001051

MVQ密封圈，适用于1"过程连接

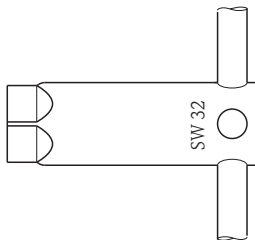
942816-0000



附件和备件
用于安装和测试

过程连接的套筒扳手32 AF

52010156



开关磁铁

52013204



故障排除

交流 (AC) 型和带转接头的直流 (DC) PNP 型		
故障	原因	补救措施
绿色 LED 指示灯没有亮起	无供电电压	检查插头、电缆和电源
红色 LED 指示灯闪烁	负载电流回路过载或短路	修复短路回路 减小负载电流, max. 250 mA
	内部传感器错误或传感器腐蚀	更换设备

AS-i 型和带 M12x1 插头的直流 (DC) PNP 型		
故障	原因	补救措施
红色 LED 指示灯亮起 (AS-i)	地址 0 设置错误或通信错误	设定地址
		设置从地址
		如需要, 减小电缆长度 (总长度小于 100 m)
红色 LED 指示灯亮起 (DC-PNP)	负载电流回路过载或短路	修复短路回路 减小负载电流, max. 250 mA
绿色 LED 指示灯没有亮起	无供电电压	检查插头、电缆和电源
红色 LED 指示灯闪烁 (2 Hz)	内部传感器错误或传感器腐蚀	更换设备

《操作手册》

KA00032F	G 1 A (焊接底座)
KA00219F	G ¾ A (焊接底座)
KA00186F	Pg11 (转接头)
KA00187F	NPT ½” (转接头)
KA00188F	QUICKON (转接头)

证书

ZE00247F (WHG)

常规装置认证 Z-65.11-311

ZE00248F (WHG, 泄露)

常规装置认证 Z-65.40-312 (泄露)

ZE00249F (As 接口)

认证号: 37102

ZE00250F (CSA 通用型, C+US)

认证号: 1238461

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