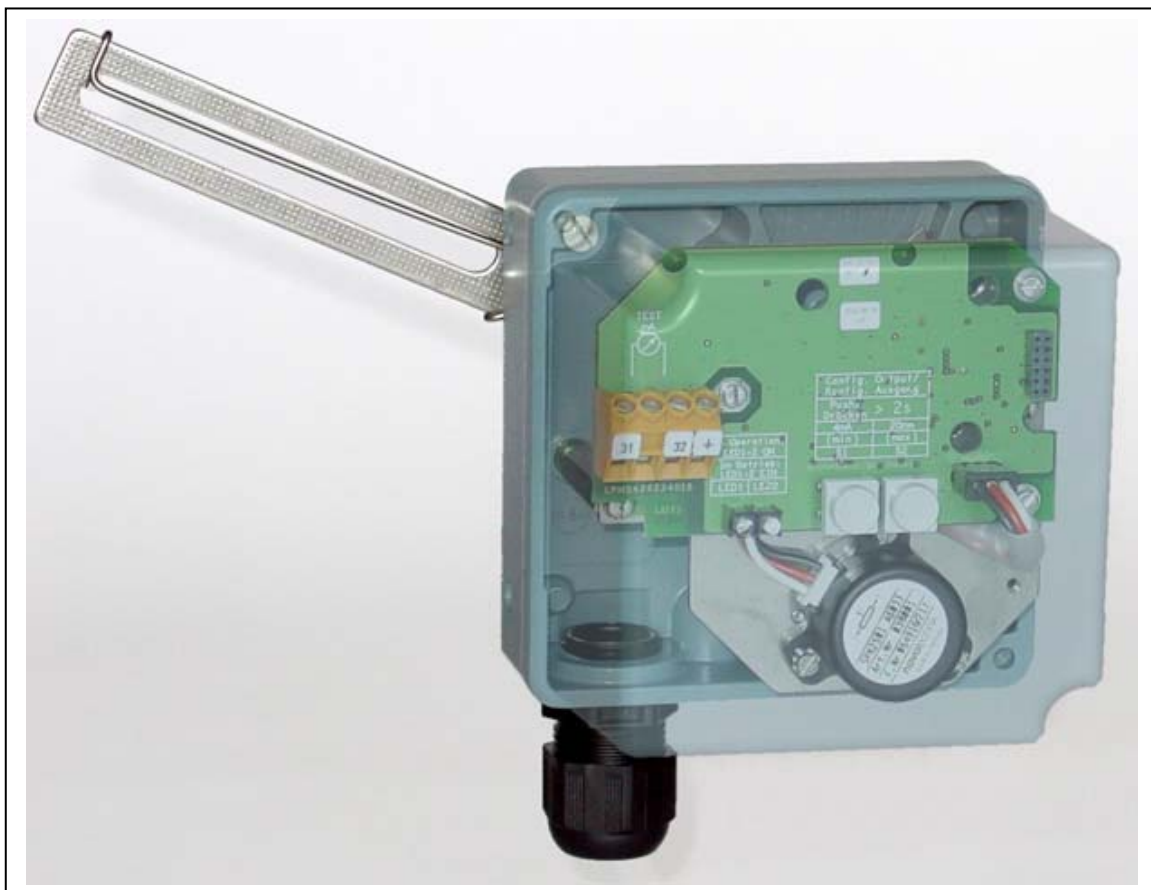


**SMI983 位置变送器 4-20 mA**

**Position Transmitter 4-20 mA**

**SGE985 感应限位开关**

**Inductive limit switches**



快速指导 ..... (中文版)

Quick Guide ..... (English)



## SMI983 位置变送器 4-20 mA

## SGE985 感应限位开关

如果需要更多具体的信息，请参见标准文件“主说明书”和“产品规格单”。这些文件可以在我公司的网站找到。

### 1 安装到线形执行机构上

对于安装到哪一侧没有具体的要求，只要保证在行程为 50% 时，反馈杆 11 是水平的即可。

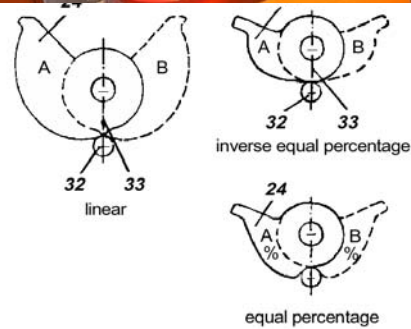


### 2 安装到角行程执行机构上

- 从带有附件的外壳上移开透明盖板。
- 将带有附件的外壳安装到角行程执行器或电枢上；如有必要，请使用执行机构制造商提供的安装硬件。
- 移动执行机构到期望的开始位置。（旋转角度 = 0°）

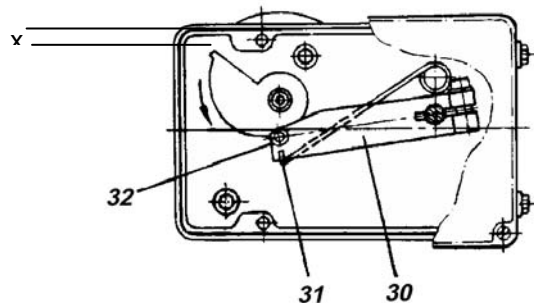


- 依照执行机构的旋转方向安装凸轮 24。线性凸轮紧紧的扣住执行机构的传动轴，于是在外壳内侧与凸轮之间 X 距离为 2mm，然而在等百分比凸轮的情况下，X 的尺寸为大约 17.5 mm。  
在反等百分比凸轮的情况下，X 的尺寸为大约 18 mm。



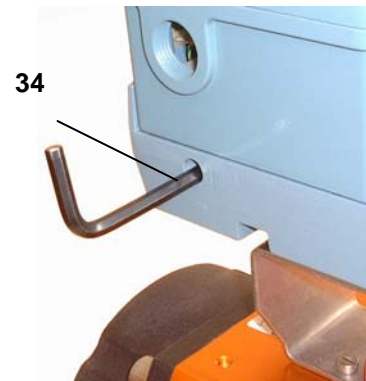
- 紧固反馈杆 30 以使角行程执行机构安装到定位器的轴 15 上。

- 将位置变送器安装到带有附件的外壳上。连接弹簧 31 到反馈杆 30 上并使凸轮从动件 32 抵住凸轮。把位置变送器用螺丝固定到带有附件的外壳上。安装线性凸轮和等百分比凸轮时，检查标记 33 是否指向凸轮从动件 32 的中心；否则需调整。



安装等百分比凸轮时，检查凸轮从动件是否在凸轮轮角起点的前面；否则需调整。

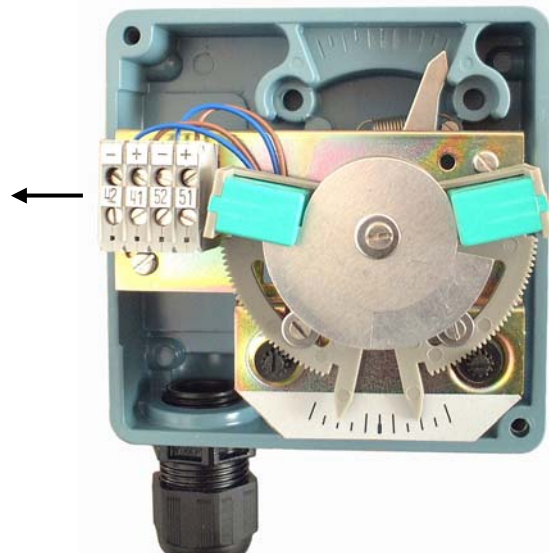
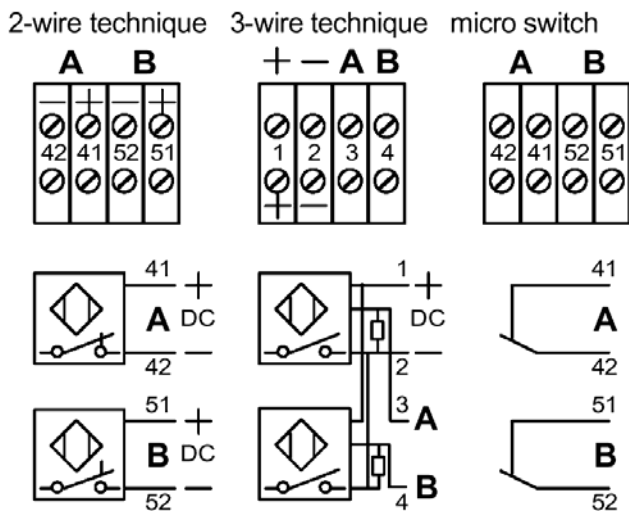
- g) 最后安装反馈杆到位置变送器的轴上，安装时行程在0%处，例如旋转角度为0°。首先通过孔34将反馈杆30的5mm A/F六角固定螺丝松动，然后压行程系数杆17到止位螺钉18（见第5页）并紧固六角固定螺丝。



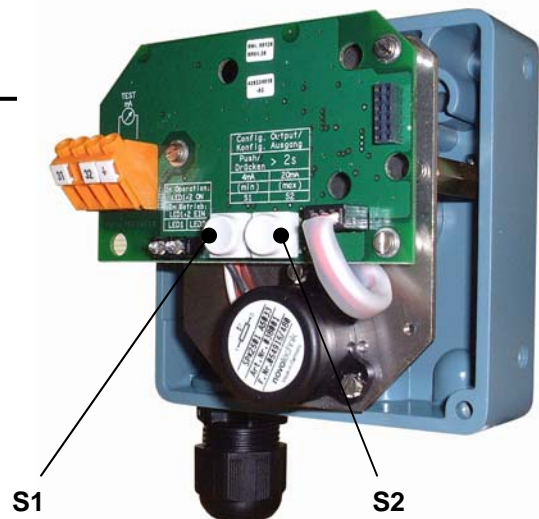
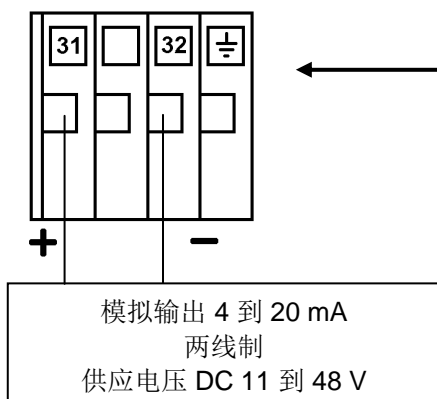
## 3 电气连接

### 3.1 对于限位开关

此设备由感应槽型传感器或微动开关组成。



### 3.2 对于位置变送器4-20mA



## 4 设置和启动

附件和此设备安装到执行机构启动的完成必须依照文件 MI EVE0102 A 或 MI EVE0101 A。在行程为 50%时，控制杆必须是水平的。

### 4.1 设置和限位开关的启动

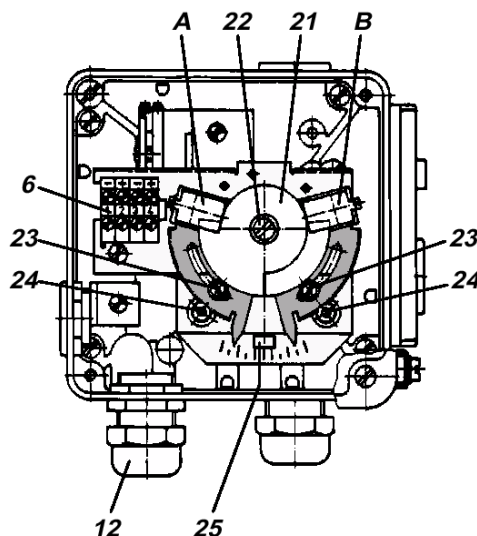
切换开关点要依靠设置控制轮叶21、探头A和B以及设定比率来完成。

设置控制轮叶时，拧松在传动轴上的螺钉22并依照第23页的插图校准控制轮叶的位置。

在拧松和/或拧紧此螺钉时，要拿住控制轮叶以避免损坏小齿轮和牙子部分。

调整探头步骤如下：

- 移动执行机构到标定的位置。
- 拧松锁定螺钉23并通过旋拧调节螺钉24来调整切换开关点。
- 然后再拧紧锁定螺钉。



通过旋拧适配器上的主轴螺钉25，可以连续的设置控制轮叶旋转角度传送比率。顺时针方向旋转增加比率，逆时针旋转减少比率。

切换功能可自由的选择和设置。

为了达到期望的开关切换动作，可根据需要调整控制轮叶，

两线制技术：当控制轮叶进入限位开关体测量间隙后，初级电路阻抗变高。

三线制技术：当控制轮叶进入限位开关体测量间隙后，触点与正极断开。

微动开关：当控制轮叶通过时，触点打开。

### 4.2 设置和位置变送器4-20mA开启

必须保证位置变送器的电气连接。然后所有 LED's 指示灯点亮。

#### 校准测量范围的起点(4mA)

- 将执行机构移动到开始的位置。
- 按下 S1 “配置 4mA 输出” 按钮，时长大于 2 秒钟。此时，LED1 点亮。2 秒钟后，两个 LED's 指示灯再次点亮，4mA 的值被存储下来。

#### 校准测量范围的终点(20mA)

- 将执行机构移动到终点的位置。
- 按下 S2 “配置 20mA 输出” 按钮，时长大于 2 秒钟。此时，LED2 点亮。2 秒钟后，两个 LED's 指示灯再次点亮，20mA 的值被存储下来。

在终点位置任意校准电流值。

- 将执行机构移动到终点的位置，您期望在此位置校准电流。
- 同时按下两个按钮大于 2 秒钟时间。然后两个 LEDs 指示灯以较慢的频率交替闪烁。

- c) 通过按 S1 “配置 4mA 输出” 按键，输出电流值将减少，通过按 S2 “配置 20mA 输出” 按键，输出电流值将增大。短暂持续按下按键会产生很小的电流值变化，长时间按下按键会以一个快速模式产生很大的电流值变化。电流值可以自由的减少到 3.3 mA,最高增加到 22.5 mA。
- d) 不需任何的按键附加操作，新的电流值会自动被存储起来。几秒钟后，两个 LED's 指示灯再次点亮，说明该设备回到了正常操作模式。

### 位置变送器的检修

所安装的微型控制器持续监测位置变送器的各个部件。当两个 LED's 指示灯同时熄灭或同时高速平行闪烁，故障就被检测并指示出来了。

如果出现重大故障，例如电位计没有被连接，那么除了 LED's 指示出故障以外（快速闪烁），一个大于 24mA 的输出电流将被显示出来。

在此情况下，检查是否发生下列事件：

- a) 电位计是否被正确的连接到电路板上。  
b) 电位计的工作量程是否有错。

当两个 LED's 熄灭时，应检查电源电压（最小电压，正负极）。

### 此产品的附加文件：

#### 定位器附件的技术信息

TI EVE0011 A 定位器安装在不同制造商的执行机构/阀门的附件的综述

#### 主说明书：

MI EVE0102 A SRI986电气阀门定位器  
MI EVE0101 A SRP981气动阀门定位器

### 用于其他产品的附加文件：

#### 产品规格

PSS EVE0109 A-(en) SRD960通用阀门定位器  
PSS EVE0105 A-(en) SRD991智能阀门定位器  
PSS EVE0106 A-(en) SRD992 数字式阀门定位器  
PSS EVE0107 A-(en) SRI990模拟阀门定位器  
PSS EVE0103 A-(en) SRI983电气阀门定位器- 防爆或 EEx d 型  
PSS EVE0101 A-(en) SRP981气动阀门定位器

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## SMI983 POSITION TRANSMITTER 4-20 mA

## SGE985 INDUCTIVE LIMIT SWITCHES

For more detailed information please refer to the standard documents "Master Instructions" and "Product Specification Sheet". These can be found on our Website.

### 1 MOUNTING TO LINEAR ACTUATORS

No specific mounting side is requested, ensure only that the feedback lever **11** is horizontal at 50 % stroke.



### 2 MOUNTING TO ROTARY ACTUATORS

a) Remove the transparent cover plate from the housing of the attachment kit.

b) Mount the housing of the attachment kit on rotary actuator or armature; use mounting hardware supplied by the actuator manufacturer if necessary.

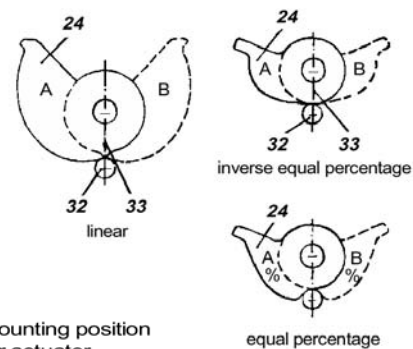
c) Move actuator into the desired starting position (rotation angle = 0°).



d) Mount cam **24** in accordance with the direction of rotation of the actuator.

The linear cam is fastened to the actuator drive shaft in such a manner that the distance  $x$  between the inside of the housing and the came amounts 2 mm, whereas in case of equal percentage cam the dimension  $x$  is approx. 17.5 mm.

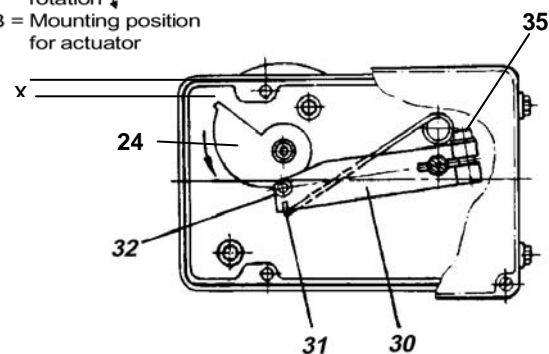
In case of inverse equal percentage cam the dimension  $x$  is approx. 18 mm.



A = Mounting position for actuator rotation ↓  
B = Mounting position for actuator

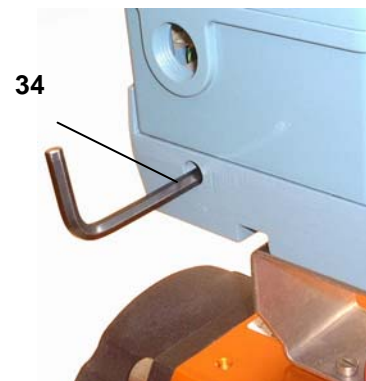
e) Fasten feedback lever **30** for the rotary actuator onto shaft **15** of positioner.

f) Mount positioner transmitter on housing of attachment kit. Attach spring **31** to feedback lever **30** and cam follower **32** against cam. Screw positioner transmitter to housing of attachment kit. With the linear cam and the inverse equal percentage cam check whether marks **33** points to the center of the cam follower **32**; adjust if necessary.



With the equal percentage cam check whether the cam follower lies directly ahead of the start of the cam lobe; adjust if necessary.

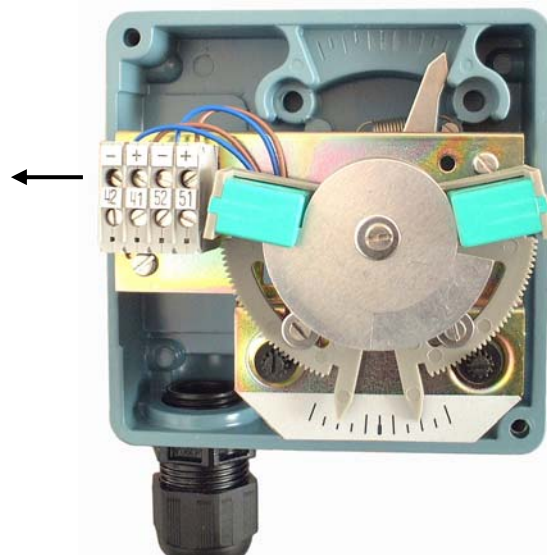
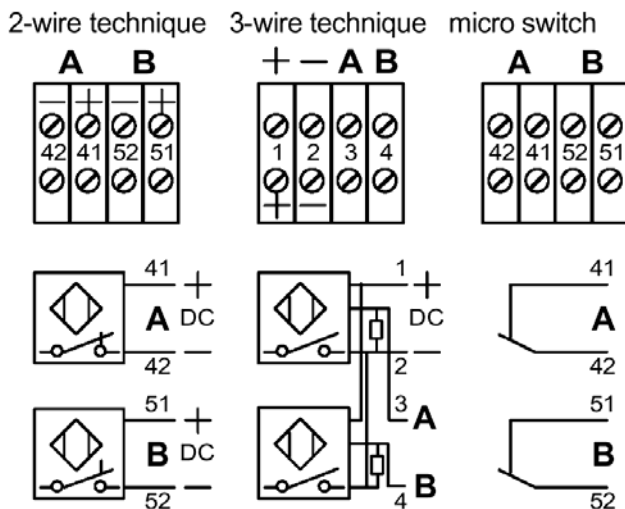
- g) Final mounting of feedback lever on shaft of positioner transmitter is performed at a stroke of 0 %, i.e. a rotation angle of 0°. First loosen 5 mm A/F Allen screw of feedback lever **30** through hole **34**. Rotate the lever **30** until stumbled with the follower **32** on the cam **24** and tighten the screw **35** (see Fig. page 1).



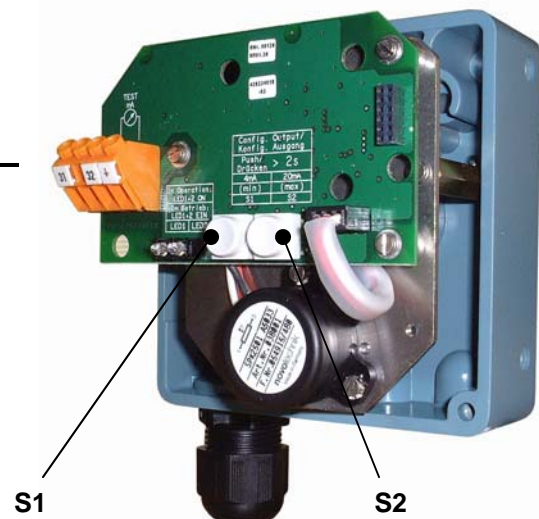
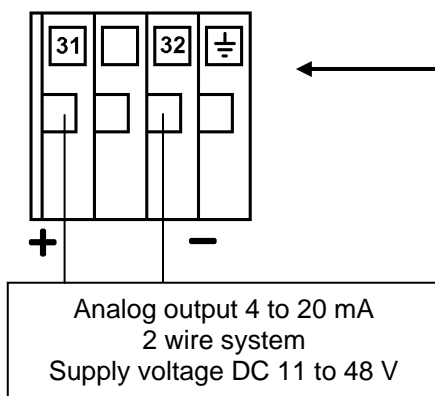
### 3 ELECTRICAL CONNECTIONS

#### 3.1 For the limit switches

This unit can consist of either inductive slot type sensors or micro switches.



#### 3.2 For the Position Transmitter 4-20 mA





## 4 SETTINGS AND START UP

Attachment and start-up of the unit to the actuator must be performed according MI EVE0102 A or MI EVE0101 A. At 50% stroke, the control lever must be horizontal.

### 4.1 Setting and Start Up of limit switches

The switching points are dependent on the setting of the control vanes **21**, on the settings of the probes **A** and **B** and on the ratio setting.

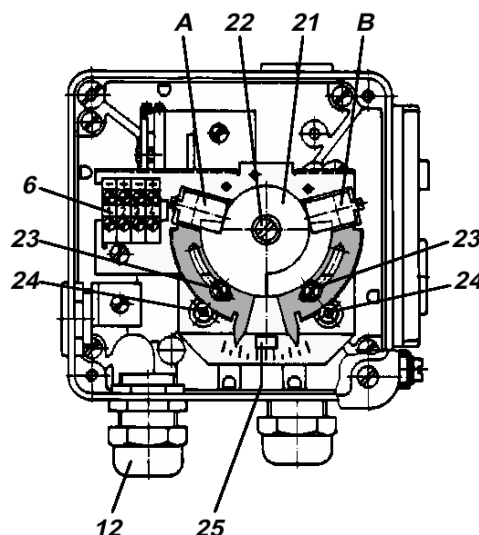
To **set the control vanes** loosen the screw **22** on the drive shaft and align the control vanes in accordance with the illustrations on page 23 of MI EVE0102 A.

During loosening and/or tightening this screw hold control vanes tightly to avoid damaging pinion and tooth segment.

**Adjust the probes** as follows:

- a) Move the actuator to the position to be signaled
- b) Loosen locking screw **23** and adjust the switching points by turning adjustment screws **24**.
- c) Then retighten locking screws.

To **set the transformation** the ratio of the rotation angel of the control vanes can be set continuously by turning the spindle screw **25** of the adapter. Turn clockwise to increase the ratio and counter-clockwise to reduce it.



The switching functions may be freely selected and set.

The control vanes may be adjusted as desired in order to reach the wanted switching behaviour.

2-wire technique: if control vane is immersed the initiator power circuit becomes high-ohmic.

3-wire technique: if control vane is immersed the contact is closed against plus.

Micro switch: Contact opens during passing of the control vanes.

### 4.2 Setting and Start Up of position transmitter 4-20 mA

The electronic connection of the position transmitter must be assured. Both LEDs are then light up.

#### Adjusting the start of the measuring range (4 mA)

- a) Move the actuator to the starting position.
- b) Press push button S1 „Config Output 4 mA“ longer than 2 seconds. During this time LED 1 lights up. After 2 seconds both LEDs are light up again, the value for 4 mA is stored.

#### Adjusting the end of the measuring range (20 mA)

- a) Move the actuator to the end position.
- b) Press push button S2 „Config Output 20 mA“ longer than 2 seconds. During this time LED 2 lights up. After 2 seconds both LEDs are light up again, the value for 20 mA is stored.

#### Random adjustment of the current values at the end points

- a) Move the actuator to the end position, where you want to adjust the current.
- b) Press both buttons simultaneously for about 2 seconds. Then both LEDs are alternating flashing in a slow frequency.

- c) With push button S1 „Config Output 4 mA“ the output current value can be decreased and with push button S2 „Config Output 20 mA“ the output current value can be increased. Pressing the buttons for a short moment results in a small change and pressing the button for a longer time results in a fast mode for a bigger change. The value of the current can be freely decreased between about 3.3 and increased up to 22.5 mA.
- d) Without any additional manipulations of the push buttons the new value is automatically saved. After a few seconds, the device returns into the normal operating mode, indicated by both LEDs that are then light up again.

### Trouble shooting of the position transmitter

The components of the position transmitter are under constant surveillance by the installed micro controller. Errors are detected and indicated when both LEDs are off or both LEDs are parallel flashing at a fast frequency.

In the event of a fatal error, e.g. potentiometer not connected, an output current of more then 24 mA will be shown in addition to the error indication given by the LEDs (fast flashing).

In this case check the following:

- a) if the potentiometer is correctly connected to the electronic board.
- b) if the potentiometer is within its working span.

When both LEDs are off, the supply voltage should be checked (minimum tension, polarity).





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