

# Jordan Valve: Mark 16IQ

Smart Positioner for Linear and Rotary Actuator

## Assembly and Installation Instructions



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# 1 Safety Information

## 1.1 Warning symbols

Safety information and warnings are intended to avert danger from the life and health of users and maintenance personnel and to prevent material damage. They are highlighted in this manual by the headings defined here. They are also marked by warning symbols next to where they appear. The headings used have the following meaning for the purposes of this manual and the product labels.

### Warning



indicates that death, severe personal injury or substantial property damage will result if proper precautions are not taken.

### Caution



indicates that minor personal injury or property damage can result if proper precautions are not taken.

### Note



indicates an important information about the product itself or the respective part of the instruction manual which is essential to highlight.

## 1.2 Introduction

These Assembly and Installation Instructions are an Instruction Manual as defined in the Directive of the Council of the European Community dtd. 23 March 1994 (94/9/EC). They describe the basic steps for assembly, connection, and commissioning.

The Assembly and Installation Instructions do not replace the manual for the SIPART PS2 electro-pneumatic positioner. The Manual contains more detailed information about assembly, function, operation.

The Manual can be ordered by us.

The Assembly and Installation Instructions and the Manual apply to the positioner both with and without PROFIBUS PA communication. The differences are indicated.

### Danger-free use

This device has left the factory in a perfect condition as regards safety. The notes and warnings in these Assembly and Installation Instructions must be observed by the user if this state is to be maintained and hazard-free operation of the device assured.

## 1.3 Qualified Personnel

A qualified person in the sense of these Assembly and Installation Instructions is one who is familiar with the installation, commissioning and operation of the device and who has the appropriate qualifications, e. g.:

- Is trained or authorized to energize, de-energize, ground and tag circuits and equipment in accordance with established safety practices
- Is trained in the proper care of protective equipment in accordance with established safety practices.
- Is trained in first aid
- In the case of devices with explosion protection: is trained or authorized to carry out work on the electric circuits of potentially explosive equipment.

### Warning



The device must only be installed and operated by qualified personnel.  
The device is designed for connection to functional or safety extra-low voltage.  
The electric safety is determined by the power supply units alone.  
High positioning forces are generated by pneumatic actuators. To prevent injury, installation and operation must be carried out under strict observation of the safety regulations.  
Reference is specifically made here to the observance of the applicable safety regulations for potentially explosive equipment.

Correct and safe operation of this device is dependent on proper transport, storage and installation as well as careful operation and maintenance.

## 2 Scope of Delivery of Positioner

- Positioner as ordered  
- type code see page 37
- Assembly and Installation Instructions, German/English
- Leaflet "Operation - a concise overview", German and English (in the device)

## 3 Assembly

### 3.1 General

#### Warning

Positioners and option modules are available for operation in zones with and without an explosion hazard. These versions are marked by a special rating plate.



When combining components, make sure that only positioners and option modules can be combined that are approved for the zone where they will be used. This especially applies to safe operation of the positioner in zone in which the atmosphere might be subject to an explosion hazard (Zones 1 and 2). In that case, it is imperative to use categories (2 and 3) both of the device itself and its options.

#### Warning

It is essential that you observe the following sequence during assembly to avoid injuries or mechanical damage to the positioner/extension kit:



- |  |                                      |
|--|--------------------------------------|
| 1. Mechanical fitting of positioner    | See Section 3 (depending on version) |
| 2. Connection of electric power supply | See Section 5                        |
| Connection of pneumatic supply         | See Section 6                        |
| 3. Put into operation                  | See Section 7                        |

### 3.2 Extension Kit “integrated mounting Linear Actuator”

The following are included in the delivery of the extension Linear Actuator IEC 534 (3 mm to 35 mm) (see Fig. 1 for item No.):

| Item No. | Quantity | Designation   | Remarks                                   |
|----------|----------|---------------|---|
| 1        | 1        | Driver Pin    | Assembly with roll (5) and lever (3)      |
| 2        | 1        | Roll          | Assembly with driver pin (1) on lever (3) |
| 3        | 1        | Lever         |   |
| 4        | 2        | U-Bolt        | B6,4 - DIN 125 - A2                       |
| 5        | 1        | Spring        | VD - 115E 0,70 x 11,3 x 32,7 x 3,5        |
| 6        | 1        | Spring washer | A6 - DIN 137A - A2                        |
| 7        | 1        | Spring washer | A6 - DIN 127 - A2                         |
| 8        | 1        | Cyl. screw    | M6 x 25 DIN 7984 - A2                     |
| 9        | 1        | Hex. nut      | M6 - DIN 934 - A4                         |
| 10       | 1        | Square nut    | M6 - DIN 557 - A4                         |
| 11       | 1        | Guide Washer  | 6,2 x 9,9 x 15 x 3,5                      |
| 12       | 2        | Cyl. screw    | M8 x 65 - DIN 912 - A2                    |
| 13       | 2        | Spring Washer | A8 - DIN 127 -A2                          |
| 14       | 2        | Screw plug    |   |
| 15       | 1        | O-ring        | 13 x 2,5                                  |

#### 3.2.1 Assembly sequence (see Fig. 1)

- Set driver pin (1) with roll to the marking which corresponds with the stroke. The center of the pin must be positioned to the scale value. The same value has to be set for 1. WAY during start up.
- Push the lever onto the positioner axis as far as possible, and secure using the cyl. screw (8).
- Open the outlets on the back side by removing the screws (16) and o-ring (17).
- Seal the outlets of exhausted air and control pressure by means of the screw plug (14).
- Insert o-ring (15) in the recess of the yoke.
- Hold the positioner on the actuator such that the roll (2) is guided between the pins (18).
- Align the positioner horizontal to the yoke and mount it with the screws (12) and the spring washers..

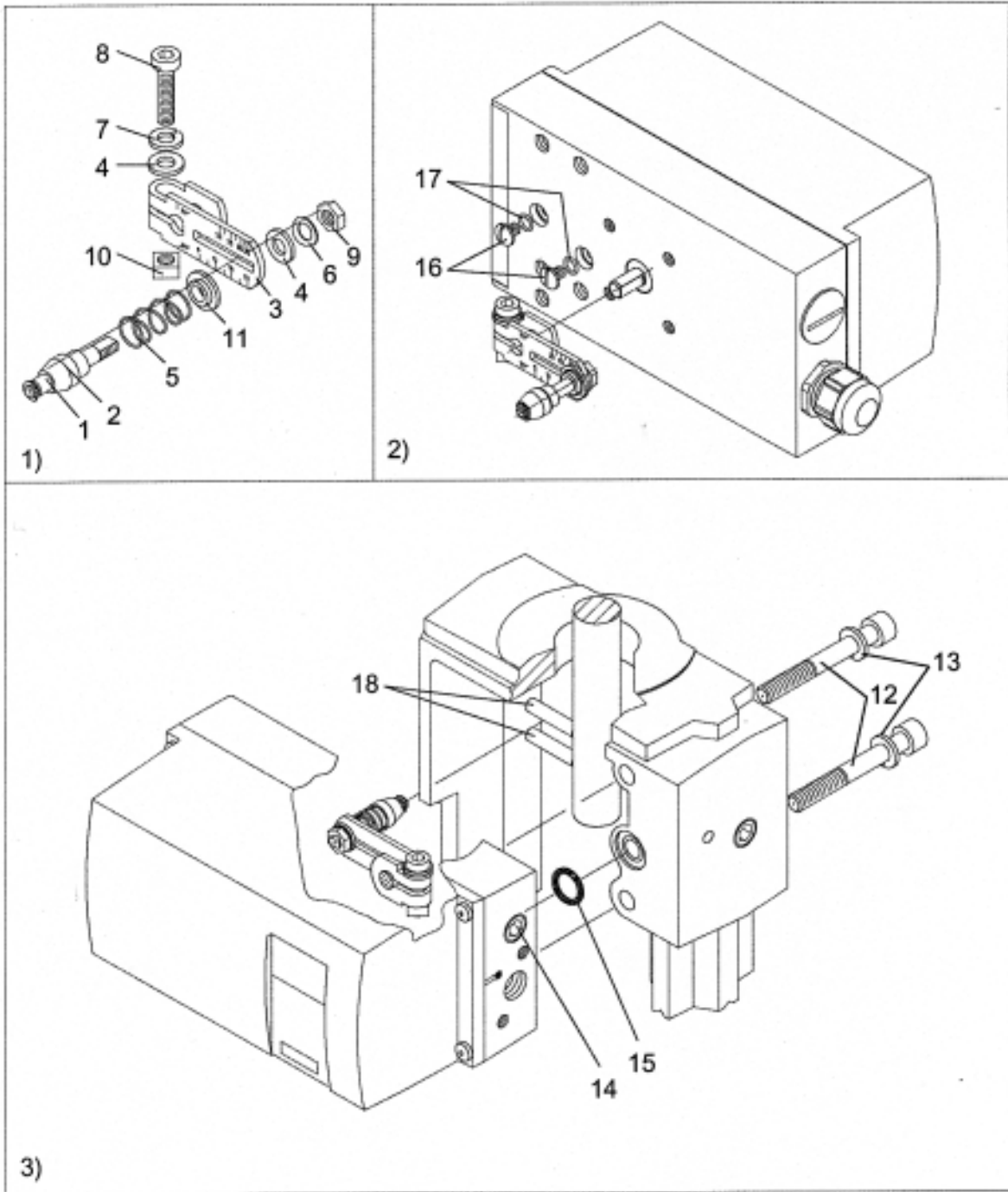


Fig. 1 - Assembly sequence (integrated mounting)

### 3.3 Extension Kit “Linear Actuator” IEC 534

The following are included in the delivery of the extension kit “Linear actuator IEC 534 (3mm to 35mm)” (see Fig. 2 for Item No.):

| Item No. | Quantity | Designation                    | Remarks  |
|----------|----------|--------------------------------|--|
| 1        | 1        | NAMUR mounting bracket IEC 534 | Standardized connection for mounting console with ledge, column or plane surface   |
| 2        | 1        | Pick-up bracket                | Guides the roll with driver pin and rotates the lever arm                          |
| 3        | 2        | Clamping assembly              | Mounting of pick-up bracket on actuator spindle                                    |
| 4        | 1        | Driver Pin                     | Assembly with roll (5) on lever (6)  |
| 5        | 1        | Roll                           | Assembly with driver pin (4) on lever (6)  |
| 6        | 1        | NAMUR lever                    | For stroke range 3mm to 35mm; For stroke ranges > 35mm to 130mm (special delivery) |
| 7        | 2        | U-Bolt                         | Only for actuators with columns  |
| 8        | 4        | Hexagon head screw             | M8 x 20 DIN 933 - A2   |
| 9        | 2        | Hexagon head screw             | M8 x 16 DIN 933 - A2   |
| 10       | 6        | Spring washer                  | A8 - DIN 127 - A2  |
| 11       | 6        | U-washer                       | B 8.4 - DIN 125 - A2   |
| 12       | 2        | U-washer                       | B 6.4 - DIN 125 - A2   |
| 13       | 1        | Spring                         | VD - 115E 0.70 x 11.3 x 32.7 x 3.5   |
| 14       | 1        | Spring washer                  | A6 - DIN 137A - A2   |
| 15       | 1        | Lock washer                    | 3.2 - DIN 6799 - A2  |
| 16       | 3        | Spring washer                  | A6 - DIN 127 - A2  |
| 17       | 3        | Cyl. screw                     | M6 x 25 DIN 7984 - A2  |
| 18       | 1        | Hexagon nut                    | M6 - DIN 934 - A4  |
| 19       | 1        | Square nut                     | M6 - DIN 557 - A4  |
| 21       | 4        | Hexagon nut                    | M8 - DIN 934 - A4  |
| 22       | 1        | Guide washer                   | 6.2 x 9.9 x 15 x 3.5   |

#### 3.3.1 Assembly Sequence (see Fig. 2)

- Mount clamping assembly (3) with cyl. screws (17) and spring washers (16) on the actuator spindle.
- Insert the pick-up bracket (2) into the recesses of the clamping assembly. Set the required length and screw only so tight that the pick-up bracket can still be shifted.
- The value of the stroke range specified on the actuator is set or, if this is not present as a scale value, the next larger scale value. The center of the pin must be positioned to the scale value. The same value can be set later for 3. YWAY during start-up, to display the travel in mm after initialization.
- Fix the cyl. screw (17), spring washer (16), U-Washer (12) and square nut (19) on the lever.
- Push the premounted lever onto the positioner axis as far as possible, and secure using the hexagon head screw (17).
- Fit the mounting bracket (1) with two hexagon head screws (9), spring washer (10) and U-Washer (11) on the rear of the positioner.
- Selection of the row of holes depends on the width of the actuator yoke. The roll (5) should engage in the pick-up bracket (2) as close to the spindle as possible, but must not touch the clamping assembly.
- Hold the positioner with the mounting bracket on the actuator such that the pin (4) is guided within the pick-up bracket (2).

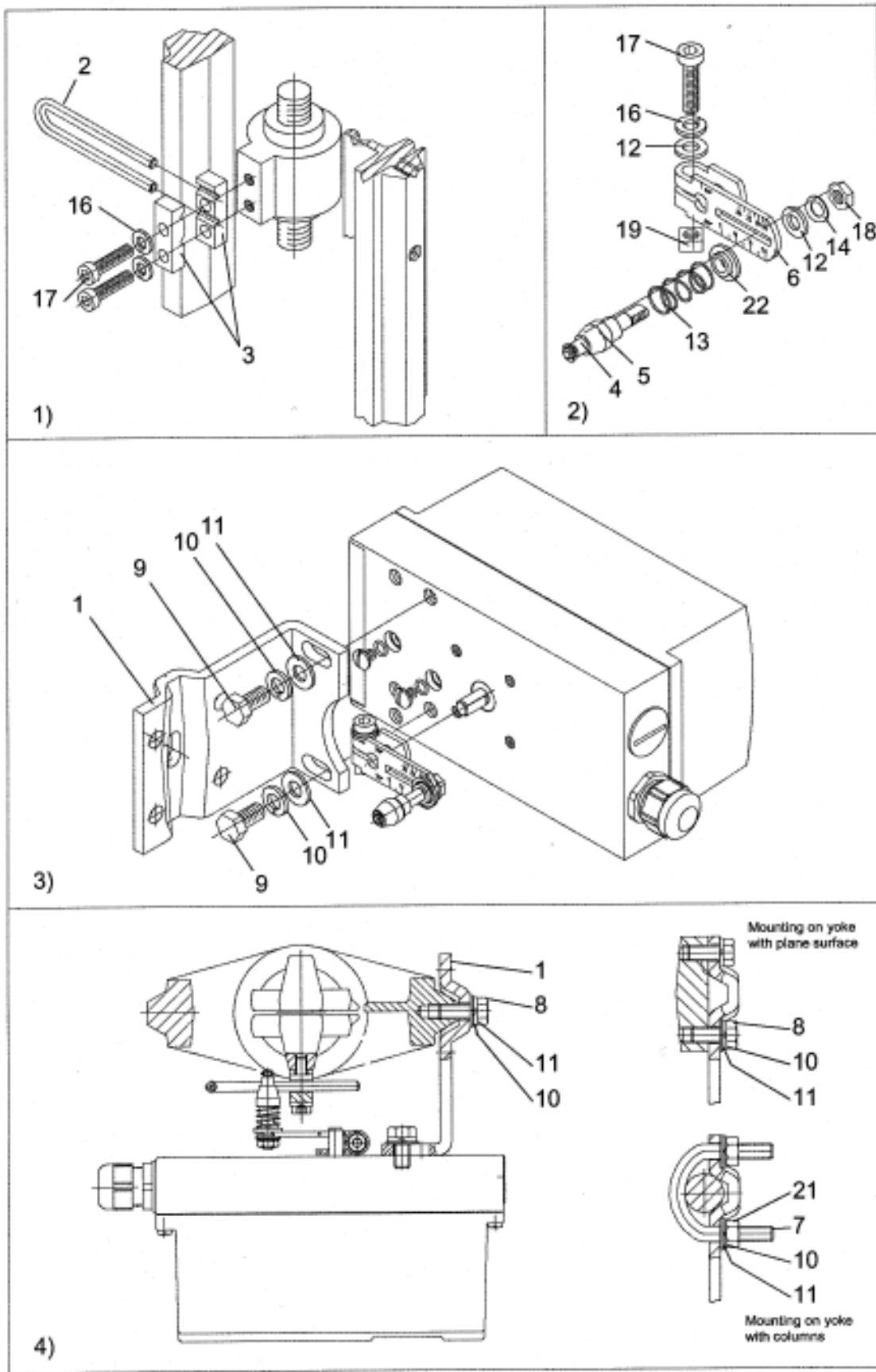
- Tighten the pick-up bracket
- Position the mounting parts according to the type of actuator.
- Actuator with ledge: hexagon head screw (8), U-washer (11) and spring washer (10)
- Actuator with plane surface: four hexagon head screws (8), U-washer (11) and spring washer (10)
- Actuator with columns: two U-bolts (7), four hexagon nuts (21) with U-washer (11) and spring washer (10).
- Secure positioner onto the yoke using the previously positioned mounting parts.

**Note**



Adjust the height of the positioner such that the horizontal lever position is reached as close as possible to the center of the stroke. You can use the lever scale of the actuator for orientation. It must always be guaranteed that the horizontal lever position is passed through within the stroke range.





**Fig. 2 - Assembly sequence (Linear Actuator) IEC 534**

### 3.4 Extension Kit “Rotary Actuator” VDI/VDE 3845

The following are included in the delivery of the extension kit “Rotary Actuator” (see Fig. 3 for item No.):

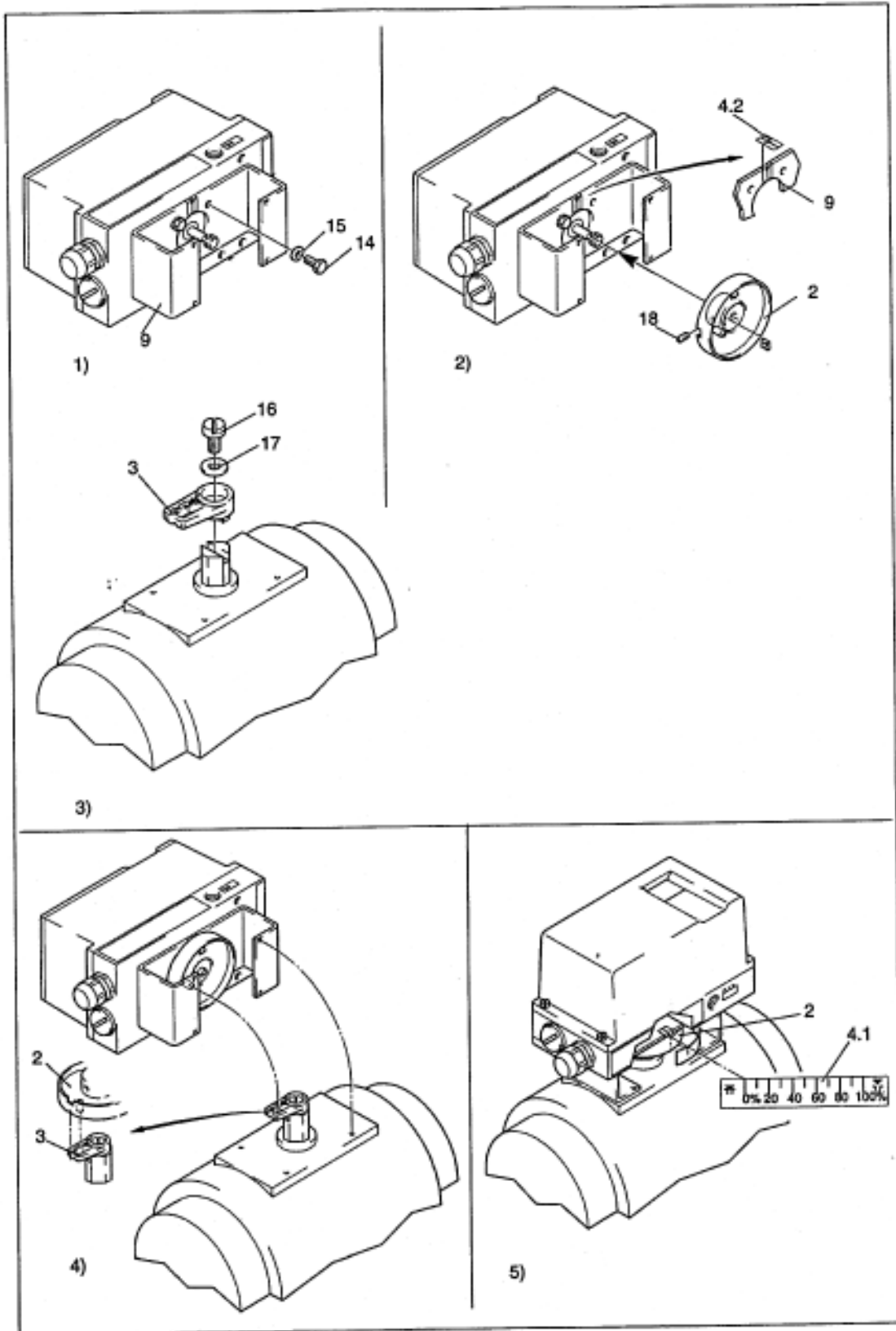
| Item No. | Quantity | Designation          | Remarks   |
|----------|----------|----------------------|---|
| 2        | 1        | Coupling wheel       | Mounting on position feedback shaft of SIPART PS2       |
| 3        | 1        | Driver               | Mounting on end of actuator shaft                       |
| 4        | 1        | Multiple scale       | Indication of actuator position, comprising 4.1 and 4.2 |
| 4.1      | 8        | Scale                | Different divisions                                     |
| 4.2      | 1        | Pointer              | Reference point for scale (adhesive label)              |
| 14       | 4        | Hexagon head screw   | DIN 933 - M6 x 12                                       |
| 15       | 4        | Lock washer          | S6  |
| 16       | 1        | Fillister head screw | DIN 84 - M6 x 12  |
| 17       | 1        | Washer               | DIN 125 - 6.4   |
| 18       | 1        | Hexagon socket screw | Premounted with coupling wheel                          |
| 19       | 1        | Allen key            | For item 18   |

#### 3.4.1 Assembly Sequence (see Fig. 3)

- Place VDI/VDE 3845 mounting console (9), actuator-specific, scope of supply of actuator manufacturer) onto rear of positioner and secure using hexagon head screws (14) and lock washers (15).
- Adhere pointer (4.2) onto mounting console in the center of the centering hole.
- Push coupling wheel (2) onto positioner axis as far as possible, pull back by about 1mm, and tighten hexagon socket screw (18) using the supplied Allen key.
- Place the driver (3) onto the end of the actuator shaft and secure using Fillister head screw (16) and washer (17).
- Carefully place positioner with mounting console on to the actuator such that the pin of the coupling wheel engages in the driver.
- Align the positioner/mounting console assembly in the center of the actuator and screw tight. (screws not included in delivery; they are part of the actuator mounting console!)
- Following start-up as described in Section 7: Drive actuator to end position and adhere scale (4.1) onto the coupling wheel (2) according to the direction of rotation or the turning range. The scale is self-adhesive!

#### 4 Option Modules (see Fig. 4, Appendix)

- Unscrew housing cover.
- Unscrew module cover (1).
- **HART module** (only for devices without PROFIBUS PA): Place the HART module (2) onto the plug connector; first remove the plug-in jumper (7) from the top connector.
- **Jy module**: Insert the Jy module (3) into the lower container slot, and connect using the supplied ribbon cable. (6).
- **Alarm module**: Insert the alarm module (4) into the upper container slot, and connect using the supplied ribbon cable (5).



**Fig. 3 - Assembly sequence (rotary actuator) VDI/VDE 3845**

## 5 Electric Connection

### Devices without PROFIBUS PA

(see FIGS: 5, 5, AND 10 TO 15, Appendix)

|                        |   |
|------------------------|---|
| Electric connection:   | screw terminals 1.5 mm <sup>2</sup>   |
| Cable inlet:           | PG 13   |
| Signal range           |   |
| Setpoint w: 4 bis 20mA | with 2-wire or 4-wire connection (see Fig. 6, Appendix)<br>compliance voltage $\geq 10$ V without HART module<br>$\geq 11,5$ V with HART module   |
| 0/4 bis 20mA           | with 3-wire or 4-wire connection (see Fig. 7, Appendix)<br>compliance voltage 0,85 V without HART module, 2,4 V with HART module<br>Power supply $U_H$ : +18 V to +35 V (+30 V with Ex) |

#### Note



Before operation with a 3/4-wire connection you must remove the jumper between terminals 1 and 2.

### Devices with PROFIBUS PA


(see Fig. 8 - Fig 10, Appendix)


|                               |  |
|-------------------------------|--|
| Electric connection:          | screw terminals 1.5 mm <sup>2</sup>  |
| Cable Inlet:                  | PG13   |
| Auxiliary power supply:       | fed from bus   |
| Bus voltage:                  | 9 to 24 V for intrinsically safe operation<br>9 to 32 V for <b>non</b> -intrinsically safe operation |
| Polarity:                     | any  |
| Current consumption:          | 12 mA $\pm$ 10%  |
| Electronic current imitation: | $I_{max}$ 16 mA in case of error   |

#### Connecting the bus cable

- Strip back the bus cable as shown in Fig. 8 (Appendix).
- Open the housing of the positioner by undoing the four screws of the cover.
- Stick the prepared bus cable through the heavy-gauge threaded joint.
- Fix the shielding to the housing using the cable clip and the two screws.
- Screw the heavy-gauge threaded joint tight.
- Connect the red and green cores as shown in Fig. 9 to terminals 3 and 7 of the basic PCB. (The polarity does not matter.)

## 6 Pneumatic Connection

**Warning**  If the electric supply is connected, the pneumatic supply must only be connected following assembly if the positioner is switched to the input level “P manual mode” (for the as supplied conditions, see leaflet “Operation - a concise overview”):

**Note**  Ensure that the air quality is suitable! Grease-free industrial air, particulates max. 5mg/m<sup>3</sup> in normal, particle size max 5µm, concentration of oil max 0,01 mg/m<sup>3</sup> in normal, pressure dew point 20K below lowest ambient temperature.

- Connection manometer for inlet air pressure and positioning pressure in necessary.
- Connection via female thread G 1/4 DIN 45141:

PZ Inlet air 1.4 to 7 bar

Y1 Positioning pressure 1 for single-action and double-action actuators

Y2 Positioning pressure 2 for double-action actuators

E Exhaust output (remove silencer if necessary)

- Safety setting on failure of electric supply:

single-action: Y1 Vented

double-action: Y1 Max. positioning pressure (inlet air pressure)


Y2 Vented

- Connect positioning pressure Y1 or Y2 (only with double-action actuators) according to desired safety setting.
- Connect inlet air to PZ.

## 7 Commissioning (see Leaflet “Operation - a concise overview”)


Because of the numerous applications it can have, the positioner must be adapted to the actuator after assembly (initialized). This initialization is largely automatic. The positioner calculates the direction of action, the travel and the angle or rotation and the travel times of the actuator one after the other.

Before initialization, you only have to set a few parameters for the positioner. The remaining parameters are set with default values that you do not normally have to alter. If you observe the following points, you will not have any problem with commissioning.

**Tip:** You can return to the previous parameter by pressing the  and  keys simultaneously.

### 7.1 Preparation for linear actuators

- Mount the positioner with the appropriate mounting kit (see Section 3.2 and 3.3).



**Note**  The position of the leverage ratio switch in the positioner is especially important (7, Leaflet “Operation - a concise overview”):

| Stroke       | Lever | Position of the leverage ratio switch |
|--------------|-------|---------------------------------------|
| 5 to 20 mm   | short | 33° (i.e. below)                      |
| 25 to 35 mm  | short | 90° (i.e. above)                      |
| 40 to 130 mm | long  | 90° (i.e. above)                      |





- Push the drive pin (1, Fig. 1; 4, Fig. 2) on the lever (3, Fig. 1; 6, Fig. 2) to the scale position corresponding to the nominal stroke or the next highest scale position and screw the driver pin tight with the nut (9, Fig. 1; 18, Fig. 2)
- Connect the actuator and positioner with the pneumatic cables and supply pneumatic power to the positioner (see Fig. 17).

- Connect a suitable current or voltage source (see Fig. 6 and Fig. 7 and Fig. 10 of **ROFIBUS PA**).
- The positioner is now in “**P manual**” mode. On the upper line of the display, the current potentiometer voltage (P) is displayed as a percentage, e. g. “**P12.3**”, and on the lower line “**NOINIT**” is blinking:




- Check that the mechanism is able to move freely over the entire setting range by moving the actuator into each final position with the  and  keys.

**Tips:** You can move the actuator quickly by pressing the other direction key while you hold the first direction key down.

- The display of the potentiometer voltage in % (upper line of the display) must always remain in the range **P5.0 to P95.0**. If that is not the case, adjust the friction clutch (8, Fig. 4) as follows: Move the actuator into its final position by pressing the  Key. Adjust the friction clutch until the upper display line displays a value between **P90.0** and **P95.0**.
- Move through the entire range by adjusting the actuator with the  and  keys and move it into the final position. The potentiometer voltage should now remain in the range **P5.0 to P95.0**. If that is still not the case, adjust the friction clutch (8, Fig. 4) as follows: Move the actuator into its final position again by pressing the  key. This time adjust the friction clutch until the upper line of the display shows a value between **P5.0** and **P10.0**.
- Now move the actuator into the horizontal position of the lever. The display should show a value between **P48.0** and **P52.0**. If that is not the case, adjust the friction clutch (8, Fig. 4) until “**P50.0**” is shown when the lever is horizontal. The more precisely you achieve that value, the more accurately the positioner can determine the displacement.


### 7.1.1 Initialization of linear actuators

If you can move the actuator correctly, leave it in a central position, and start automatic initialization:

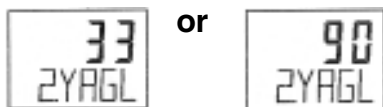
- Press the mode key  for more than 5 s. This takes you into Configuration mode.

**Display:**



- Switch to the second parameter by pressing the mode key  briefly.

**Display:**



**Note:** This value must match the setting of the leverage ratio switch (6, Leaflet “Operation - a concise overview”) (33° or 90°)

- Switch to the following display with the mode key :

**Display**



You only have to set this parameter if you want to have the calculated total stroke display in mm at the end of the initialization phase. To do that, select the same value in the display as the value to which you set the driver pin on the scale of the lever.

- Switch to the following display with the mode key  :

**Display:**



- Start initialization by pressing the  key for more than 5 s.

**Display:**



During the initialization process “**RUN1**” to “**RUN5**” appear one after the other in the lower display.

**Note**




The initialization process can take up to 15 min depending on the actuator.

Initialization is complete when the following display appears:



After you have pressed the mode key  briefly, the following display appears:



To exit **Configuration** mode press the mode key  for more than 5 s. after about 5 s, the software version is displayed. After you have released the mode key, the unit is in manual mode.

If you want to set further parameters, use the leaflet “Operation - a concise overview” or the Manual.

You can start reinitialization from manual or automatic mode at any time.

## 7.2 Preparation for rotary actuators



**Note**







**Especially important:** Switch the leverage ratio switch (6, leaflet “Operation - a concise overview”) in the positioner into position 90° (usual adjustment angle for rotary actuators.)

- Mount the positioner with the appropriate mounting kit. (see section 3.4).
- Connect the actuator and positioner with pneumatic cables and supply pneumatic power to the positioner (see Fig. 17).
- Connect a suitable current or voltage source (see Fig. 6 and Fig. 7 and Fig. 10 of **ROFIBUS PA**).
- The positioner is now in “**P manual**” mode. On the upper line of the display the current potentiometer voltage (P) is displayed as a percentage, e. g. “**P12.3**”, and on the lower line “**NOINIT**” is blinking:




- Check that the mechanism is able to move freely over the entire setting range by moving the actuator into each final position with the  and  keys.

- **Tip:** You can move the actuator quickly by pressing the other direction key while you hold the first direction key down.
- The display of the potentiometer voltage in % (upper line of the display) must always remain in the range **P5.0** to **P95.0**. If that is not the case, adjust the friction clutch (8, Fig. 3) as follows: Move the actuator into its final position by pressing the  key. Adjust the friction clutch until the upper display line displays a value between **P90.0** and **P95.0**.
- Move through the entire range by adjusting the actuator with the  and  keys and move it into the final position. The potentiometer voltage should now remain in the range **P5.0** to **P95.0**. If that is still not the case, adjust the friction clutch (8, Fig. 4) as follows: Move the actuator into its final position again by pressing the  key. This time adjust the friction clutch until the upper line of the display shows a value between **P5.0** and **P10.0**.


## 7.2.1 Initialization of rotary actuators

Once you can move the actuator through its setting range correctly, leave it in a central position and start automatic initialization:

- Press the mode key  for more than 5 s. This takes you into Configuration mode.


**Display**



- Set the parameter to “turn” with the  key.

**Display**



- Switch to the second parameter by pressing the mode key  briefly. The second parameter is set to 90° automatically.

**Display**



- Switch to the following display with the mode key .

**Display**



- Start initialization by pressing the  key for more than 5 s.

**Display**



During the initialization process “**RUN1**” to “**RUN5**” appear one after the other in the lower display.

### Note



The initialization process can take up to 15 min depending on the actuator.




Initialization is complete when the following display appears:



The upper value shows the total angle of rotation of the actuator (example 93,5°).

After you have pressed the mode key  briefly, the following display appears:



To exit **Configuration** mode, press the mode key  for more than 5 s. After about 5 s, the software version is displayed. After you have released the mode key, the unit is in manual mode. If you want to set further parameter, use the leaflet “Operation - a concise overview” or the Manual.

You can start reinitialization from manual or automatic mode at any time.

## 8 Conformity

The ARCAPRO positioner without PROFIBUS PA with the associated options is approved as standard for operation in zone 1 as EEx ib (see EC prototype test certificate PTB 97 ATEX 2186) as well as in zone 2 as Ex nV (see conformity statement TUV 97 ATEX 1212)

Certification FMRC (Factory Mutual Research Corporation) has also been granted.



### EG-Baumusterprüfbescheinigung



(13) EG-Baumusterprüfbescheinigung PTB 97 ATEX 2186

### Anlage

- (1) Geräte und Schutzsysteme zur bestimmungsgemäßen Verwendung in explosionsgefährdeten Bereichen - Richtlinie 94/9/EG  
(2) EG-Baumusterprüfbescheinigungsnummer

PTB 97 ATEX 2186

- (3) Hersteller: ARICA-REGLER GmbH  
(4) Anschrift: Kemperer Straße 18, D-47818 Tostert  
(5) Die Bauart dieses Gerätes sowie die verschiedenen zulässigen Ausführungen sind in der Anlage zu dieser Baumusterprüfbescheinigung festgelegt.  
(6) Die Physikalisch-Technische Bundesanstalt bescheinigt als benannte Stelle Nr. 0102 nach Artikel 9 der Richtlinie des Rates der Europäischen Gemeinschaften vom 23. März 1994 (94/9/EG) die Erfüllung der grundlegenden Sicherheits- und Gesundheitsanforderungen für die Konzeption und den Bau von Geräten und Schutzsystemen zur bestimmungsgemäßen Verwendung in explosionsgefährdeten Bereichen gemäß Anhang II der Richtlinie.

- (7) Die Ergebnisse der Prüfung sind in dem vertikalen Prüfbericht Nr. PTB Ex 97-27258 festgelegt.  
(8) Die grundlegenden Sicherheits- und Gesundheitsanforderungen werden erfüllt durch Übereinstimmung mit  
DIN EN 50014:1994-03 DIN EN 50020:1995-04 DIN EN 50014:prA1:1996  
Falls das Zeichen „X“ hinter der Bescheinigungsnummer steht, wird auf besondere Bedingungen für die sichere Anwendung des Gerätes in der Anlage zu dieser Bescheinigung hingewiesen.  
(9) Diese EG-Baumusterprüfbescheinigung bezieht sich nur auf Konzeption und Bau des festgelegten Gerätes gemäß Richtlinie 94/9/EG. Weitere Anforderungen dieser Richtlinie gelten für die Herstellung und das Inverkehrbringen dieses Gerätes.

- (10) Die Kennzeichnung des Gerätes muß die folgenden Angaben enthalten:  
II 2 G EEx Ib IIC T6 Braunschweig, 18.09.1997

Zertifizierungsinstitut Explosionschutz  
Im Auftrag

Dr.-Ing. U. Johannsson  
Oberniederrhein

Dr.-Ing. U. Johannsson  
Oberniederrhein



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Diese EG-Baumusterprüfbescheinigung darf nur unverändert weiterverleihen werden.  
Änderungen bedürfen der Genehmigung der Physikalisch-Technischen Bundesanstalt.  
Physikalisch-Technische Bundesanstalt - Bundesallee 111 - D-38116 Braunschweig

(14) EG-Baumusterprüfbescheinigung PTB 97 ATEX 2186

(15) Beschriftung des Gerätes

Der Stellungsregler ARICApro Typ 827.X... dient als Kopplungsbaugruppe zwischen elektrischen Reglern oder Steuerungseinheiten und pneumatischen Stellantrieben. Die zulässigen Umgebungstemperaturbereiche in Abhängigkeit von der Temperaturklasse sind der folgenden Tabelle zu entnehmen:

| Temperaturklasse | Umgebungstemperaturbereich |
|------------------|----------------------------|
| T6               | -30°C bis +50°C            |
| T5               | -30°C bis +65°C            |
| T4               | -30°C bis +80°C            |

Elektrische Daten

Grundgerät

2-Leiterschaltung  
Hilfsenergie- und Steuerstromkreis  
in Reihenanschaltung, 4 bis 20 mA  
(KL 3 u. 7/8;  
Brücken an NO, 1-2 u. 4/5-6)

In Zündschutzart Eigensicherheit EEx Ib IIC  
nur zum Anschluß an beschriebene eigensichere  
Stromkreise mit folgenden Höchstwertes:  
U<sub>i</sub> = 30 V  
I<sub>i</sub> = 100 mA  
P<sub>i</sub> = 1 W  
wirksame lineare Kapazität C<sub>i</sub> = 12,1 nF  
wirksame lineare Induktivität L<sub>i</sub> = 0,22 mH

3/4-Leiterschaltung  
Hilfsenergie- und Steuerstromkreis  
getrennt  
oder gemeinsamer Fußpunkt  
(KL 4/5-7/8)  
Hilfsenergie 18 bis 30 V  
(KL 3 u. 4/5)  
Steuerstrom 4 bis 20 mA  
(KL 6 u. 7/8)

In Zündschutzart Eigensicherheit EEx Ib IIC  
nur zum Anschluß an beschriebene eigensichere  
Stromkreise mit folgenden Höchstwertes:  
U<sub>i</sub> = 30 V  
I<sub>i</sub> = 100 mA  
P<sub>i</sub> = 1 W  
wirksame lineare Kapazität C<sub>i</sub> = 19 nF  
wirksame lineare Induktivität L<sub>i</sub> = 0,11 mH  
(je Stromkreis)

EG-Baumusterprüfbescheinigungen wie Umriss und ohne Siegel haben keine Gültigkeit.  
Diese EG-Baumusterprüfbescheinigung darf nur unverändert weiterverleihen werden.  
Änderungen bedürfen der Genehmigung der Physikalisch-Technischen Bundesanstalt.  
Physikalisch-Technische Bundesanstalt - Bundesallee 111 - D-38116 Braunschweig

Anlage zur EG-Baumusterprüfbescheinigung PTB 97 ATEX 2186

(17) Besondere Bedingungen  
 nicht zutreffend

(18) Grundlegende Sicherheits- und Gesundheitsanforderungen  
 durch Normen erfüllt

Zertifizierungsstelle Explosionschutz  
 im Auftrag



Braunschweig, 19.09.1997

Anlage zur EG-Baumusterprüfbescheinigung PTB 97 ATEX 2188

Einleitungsstromkreis  
 (Kl. 5 u. 10)

Optionen

HELT-Modul Typ 6DR6004-6H

Alarm-Modul Typ 6DR4004-6A

Einleitungsstromkreise  
 (Kl. 51 u. 52,  
 bzw. 41 u. 42,  
 bzw. 31 u. 32)

Einleitungsstromkreis  
 (Kl. 11 u. 12)

Einleitungsstromkreis  
 (Kl. 21 u. 22)

HE-Modul Typ 6DR6004-6J

Ausgangsstromkreis, 4 bis 20 mA  
 (Kl. 61 u. 62)

getrocknet oder Anschluss an Schaltkontakt

angeschließt in dem Steuerstromkreis (Kl. 6 u. 7/8)

In Zündschutzart Eigensicherheit EEx ib IIC  
 nur zum Anschluss an beschriebene eigensichere  
 Stromkreise mit folgendem Höchstwert:

$U_i = 30 \text{ V}$

wirksame innere Kapazität  $C_i = 5,2 \text{ nF}$   
 Die wirksame innere Induktivität ist vernachlässig-  
 bar klein  
 (je Stromkreis)

In Zündschutzart Eigensicherheit EEx ib IIC  
 nur zum Anschluss an beschriebene eigensichere  
 Stromkreise mit folgendem Höchstwert:

$U_i = 30 \text{ V}$

Die wirksame innere Kapazität ist vernachlässig-  
 bar klein  
 Die wirksame innere Induktivität ist vernachlässig-  
 bar klein

getrocknet oder Anschluss an Schaltkontakt

In Zündschutzart Eigensicherheit EEx ib IIC  
 nur zum Anschluss an beschriebene eigensichere  
 Stromkreise mit folgendem Höchstwert:

$U_i = 30 \text{ V}$

$I_i = 100 \text{ mA}$

$P_i = 1 \text{ W}$

wirksame innere Kapazität  $C_i = 11 \text{ nF}$   
 wirksame innere Induktivität  $L_i = 0,22 \text{ mH}$

(16) Endbestell-Nr. PTB Ex 97-27256



EG-Baumusterprüfbescheinigung



Anlage

EG-Baumusterprüfbescheinigung PTB 97 ATEX 2155

Beschreibung des Gerätes

Der Stellungsregler SIPART PS Typ 6DR4007-E dient als Kopplungsbaugruppe zwischen elektrischen Reglern oder Steuerungseinheiten und pneumatischen Stellantrieben. Die zulässigen Umgebungstemperaturbereiche in Abhängigkeit von der Temperaturklasse sind der folgenden Tabelle zu entnehmen:

| Temperaturklasse | Umgebungstemperaturbereich |
|------------------|----------------------------|
| T6               | -30°C bis +50°C            |
| T5               | -30°C bis +55°C            |
| T4               | -30°C bis +60°C            |

Elektrische Daten

Grundgerät

Zuleiterschaltung

in Zündschutzart ExEx ib IIC

nur zum Anschluss an beschriebene eigenständige Stromkreise mit folgenden Höchstwerten:

U<sub>n</sub> = 30 V  
I<sub>n</sub> = 100 mA  
P<sub>n</sub> = 1 W  
wirksame innere Kapazität C<sub>n</sub> = 12,1 nF  
wirksame innere Induktivität L<sub>n</sub> = 0,22 mH

in Zündschutzart ExEx ib IIC

nur zum Anschluss an beschriebene eigenständige Stromkreise mit folgenden Höchstwerten:

U<sub>n</sub> = 30 V  
I<sub>n</sub> = 100 mA  
P<sub>n</sub> = 1 W  
wirksame innere Kapazität C<sub>n</sub> = 19 nF  
wirksame innere Induktivität L<sub>n</sub> = 0,11 mH  
(je Stromkreis)

24-Leiterschaltung

Hilfsenergie- und Steuerstromkreis getrennt oder gemeinsamer Fußpunkt

(N<sub>L</sub> 4/5=7/8)  
Hilfsenergie 18 bis 30 V  
(N<sub>L</sub> 3 u. 4/5)  
Steuerstrom 4 bis 20 mA  
(N<sub>L</sub> 6 u. 7/8)

EG-Baumusterprüfbescheinigung



EG-Baumusterprüfbescheinigung PTB 97 ATEX 2155

Stellungsregler SIPART PS Typ 6DR4007-E mit Optionen

Hersteller: Siemens AG, Automatisierungstechnik  
Siemensstraße 84, D-76187 Karlsruhe

Die Bauart dieses Gerätes sowie die verschiedenen zulässigen Ausführungen sind in der Anlage zu dieser Baumusterprüfbescheinigung festgelegt.

Die Physikalisch-Technische Bundesanstalt beschließt als benannte Stelle Nr. 0102 nach Artikel 9 der Richtlinie des Rates der Europäischen Gemeinschaften vom 23. März 1984 (84/96/EG) die Erteilung der grundlegenden Sicherheits- und Gesundheitsanforderungen für die Konzeption und den Bau von Geräten und Schutzsystemen zur bestimmungsgemäßen Verwendung in explosionsgefährdeten Bereichen gemäß Anhang II der Richtlinie.

Die Ergebnisse der Prüfung sind in dem vertraulichen Protokoll Nr. PTB Ex 97-27196 festgelegt.

Die grundlegenden Sicherheits- und Gesundheitsanforderungen werden erfüllt durch Übereinstimmung mit

DIN EN 60014:1994-03 DIN EN 60205:1996-04

Falls das Zeichen „X“ hinter der Bescheinigungsnummer steht, wird auf besondere Bedingungen für die sichere Anwendung des Gerätes in der Anlage zu dieser Bescheinigung hingewiesen.

Diese EG-Baumusterprüfbescheinigung bezieht sich nur auf Konzeption und Bau des festgelegten Gerätes gemäß Richtlinie 94/9/EG. Weitere Anforderungen dieser Richtlinie gelten für die Herstellung und das Inbetriebnehmen dieses Gerätes.

Die Kennzeichnung des Gerätes muß die folgenden Angaben enthalten:

II 2 G EEx Ib IIC T6 Braunschweig, 19.08.1997

Zertifizierungsstelle Explosionsschutz  
Im Auftrag  
Dr.-Ing. M. Jochims  
Obereignungsamt



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Physikalisch-Technische Bundesanstalt • Bundesstraße 100 • D-31118 Braunschweig

Einleitungskreis  
(Kl. 9 u. 10)

getrennt oder Anschluss an Schaltkontakt

Optionen

HART-Modul Typ 6DR4004-6H

eingeschaltet in den Steuerstromkreis (Kl. 9 u. 7/8)

Alarm-Modul Typ 6DR4004-6A

Einleitungskreis

(Kl. 51 u. 52,  
bzw. 41 u. 42,  
bzw. 31 u. 32)

In Zündschutzart Eigensicherheit EEx ib IIC  
nur zum Anschluss an beschleunigte eigensichere  
Stromkreise mit folgendem Höchstwert:  
 $U_i = 30\text{ V}$   
Die wirksame innere Kapazität  $C_i = 5,2\text{ nF}$   
Die wirksame innere Induktivität ist vernachlässig-  
bar klein  
( $q = \text{Stromenergie}$ )

Einleitungskreis

(Kl. 11 u. 12)

In Zündschutzart Eigensicherheit EEx ib IIC  
nur zum Anschluss an beschleunigte eigensichere  
Stromkreise mit folgendem Höchstwert:  
 $U_i = 30\text{ V}$   
Die wirksame innere Kapazität ist vernachlässig-  
bar klein  
Die wirksame innere Induktivität ist vernachlässig-  
bar klein

Einleitungskreis

(Kl. 21 u. 22)

getrennt oder Anschluss an Schaltkontakt

Ex-Modul Typ 6DR4004-6J

Ausgangskreis, 4 bis 20 mA

(Kl. 61 u. 62)

In Zündschutzart Eigensicherheit EEx ib IIC  
nur zum Anschluss an beschleunigte eigensichere  
Stromkreise mit folgenden Höchstwerten:  
 $U_i = 30\text{ V}$   
 $I_i = 100\text{ mA}$   
 $P_i = 1\text{ W}$   
Die wirksame innere Kapazität  $C_i = 11\text{ nF}$   
Die wirksame innere Induktivität  $L_i = 0,22\text{ mH}$

(16) Prüfzettel Nr. PTB Ex 97-27160

Seite 3/4

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Physikalisch-Technische Bundesanstalt - Bundesallee 100 - D-38115 Braunschweig

(17) Besondere Bedingungen  
nicht zutreffend

(18) Grundlegende Sicherheits- und Gesundheitsanforderungen  
Durch Normen erfüllt

Zertifizierungsstelle Explosionsschutz

Im Auftrag



Dr.-Ing. U. Johannes  
Oberingenieur

Braunschweig, 19.08.1997

Seite 4/4

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Physikalisch-Technische Bundesanstalt - Bundesallee 100 - D-38115 Braunschweig

**2. ERGÄNZUNG**  
 gemäß Richtlinie 94/9/EG Anhang III Ziffer 6  
 zur EG-Baumusterprüfbescheinigung PTB 97 ATEX 2155

**1. ERGÄNZUNG**  
 gemäß Richtlinie 94/9/EG Anhang III Ziffer 6  
 zur EG-Baumusterprüfbescheinigung PTB 97 ATEX 2155

Gerät: Stellungsregler SIPART PS Typ 6DR400\*-E  
 Kernzeichnung: II 2 G EEx Ib IIC T8 bzw. EEx Ia IIC T8  
 Hersteller: Siemens AG Automatisierungstechnik  
 Anschrift: Siemensallee 84, 76187 Karlsruhe

Gerät: Stellungsregler SIPART PS Typ 6DR400\*-E mit Optionen  
 Hersteller: Siemens AG  
 vom: Siemens AG, Automatisierungstechnik  
 Anschrift: Siemensallee 84, D-76187 Karlsruhe

**Beschreibung der Ergänzungen und Änderungen**

Der Stellungsregler SIPART PS Typ 6DR400\*-E wird um den Typ 6DR410\*-E erweitert und darf künftig auch entsprechend den im nachgeratenen Prüfbericht aufgeführten Umständen gefertigt werden.

**Beschreibung der Ergänzungen und Änderungen**  
 Der Stellungsregler SIPART PS Typ 6DR400\*-E mit Optionen darf künftig entsprechend dem im Prüfbericht genannten Prüfumsatz gefertigt werden. Die Änderungen betreffen den inneren Aufbau und die Typbezeichnung des Gerätes. Diese lauten künftig: Stellungsregler SIPART PS2 Typ 6DR400\*-E mit Optionen. Die elektrischen Daten und alle übrigen Angaben bleiben unverändert.

Dokumenten-Nr.: PTB Ex 97-27251

Zertifizierungsstelle Explosionschutz  
 Im Auftrag  
  
 Dr.-Ing. U. Johnson  
 Regierungsdirektor

Braunschweig, 06.01.1998

**Grundgerät**

Hilfsenergie-Ausgangssignalstromkreis PROFIBUS-PA (Klemmen 7 und 8)

In Zündschutzart Eigensicherheit EEx Ia IIC bzw. EEx Ib IC nur zum Anschluss an einen beschriebenen eigenständigen Stromkreis (z.B. FISCO-Speisepaß) mit Höchstwertan entsprechend der folgenden Tabelle:

|           | FISCO-Speisepaß EEx Ib IIC | FISCO-Speisepaß EEx Ia IIC | FISCO-Speisepaß EEx Ia IIC oder EEx Ib IC | Barriere EEx Ia IIC oder EEx Ib IC |
|-----------|----------------------------|----------------------------|---|------------------------------------|
| Kennlinie | nicht-Ückförmig            | nicht-Ückförmig            | Ückförmig                                 | linear                             |
| Spannung  | 17,5 V                     | 17,5 V                     | 17,5 V                                    | 24 V                               |
| Strom     | 128 mA                     | 260 mA                     | 215 mA                                    | 260 mA                             |
| Leistung  | 1,8 W                      | 4,3 W                      | 1,8 W                                     | 1,2 W                              |

$L = 5 \mu\text{H}$   
 $C = \text{vermöchlüssigbar Meß}$

## Physikalisch-Technische Bundesanstalt

Braunschweig und Berlin

2. Ergänzung zur EG-Baumusterprüfbescheinigung PTB 97 ATEX 2155

### Optionen

Alarm-Modul Typ 6DR4004-6A

Brühergangstromkreis

(Kl. 51 u. 52,  
sow. 41 u. 42,  
bzw. 31 u. 32)

in Zündschutzart Eigensicherheit EEx ia IIC  
nur zum Anschluß an beschriebene eigenrichtere Stromkreise  
Höchstwerte je Stromkreis:

$U_n = 30$  V  
 $C_n = 5,2$  nF  
 $L_n$  vernachlässigbar klein

Brühergangstromkreis

(Kl. 11 u. 12)

in Zündschutzart Eigensicherheit EEx ia IIC  
nur zum Anschluß an beschriebene eigenrichtere Stromkreise  
Höchstwerte:

$U_n = 30$  V  
 $C_n$  vernachlässigbar klein  
 $L_n$  vernachlässigbar klein

Brühergangstromkreis

(Kl. 21 u. 22)

getrennt oder Anschluß an Schaltkontakt

Brühergangstromkreis

Typ 6DR4004-6J

Ausgangstromkreis, 4 bis 20 mA

(Kl. 61 u. 62)

in Zündschutzart Eigensicherheit EEx ia IIC  
nur zum Anschluß an beschriebene eigenrichtere Stromkreise  
Höchstwerte:

$U_n = 30$  V  
 $I_n = 100$  mA  
 $P_n = 1$  W  
 $C_n = 11$  nF  
 $L_n = 0,22$  mH

Die Brühergangstromkreise (Alarm-Modul) sind untereinander sowie von allen anderen Stromkreisen bis zu einem Scheitwert der Nennspannung von 30 V sicher galvanisch getrennt. Der Ausgangstromkreis (Alarm-Modul) und der Brühergangstromkreis (Alarm-Modul) sind von allen anderen Stromkreisen bis zu einem Scheitwert der Nennspannung von 30 V sicher galvanisch getrennt.

Alle übrigen Daten bleiben unverändert.

Druckdatum: PTB Ex 98-26385

Seite 2/3

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Physikalisch-Technische Bundesanstalt - Bundesallee 100 - D-38116 Braunschweig

## Physikalisch-Technische Bundesanstalt

Braunschweig und Berlin

2. Ergänzung zur EG-Baumusterprüfbescheinigung PTB 97 ATEX 2155

Spezielle Bescheinigung

nicht zureichend

Zertifizierungsstelle Explosiveschutz

Im Auftrag

Dr.-Ing. U. Johann  
Regierungsreferent

Braunschweig, 28. Oktober 1998

Seite 3/3

EG-Baumusterprüfbescheinigung ohne Unterschrift und ohne Siegel haben keine Gültigkeit.  
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Änderung oder Anhebung bedürfen der Genehmigung der Physikalisch-Technischen Bundesanstalt.  
Physikalisch-Technische Bundesanstalt - Bundesallee 100 - D-38116 Braunschweig





## TÜV Hannover/Sachsen-Anhalt e.V.

### Anlage zur Konformitätsaussage Nr. TÜV 97 ATEX 1212

Einleitungsstromkreis  
(Kl. 11 u. 12)

zum Anschluß an Stromkreise mit folgendem  
Höchstwert im Normalbetrieb:  
 $U_1 = 30 \text{ V}$   
Die wirksame innere Kapazität ist vernachlässigbar klein.  
Die wirksame innere Induktivität ist vernachlässigbar  
klein.

Einleitungsstromkreis  
(Kl. 21 u. 22)

gebildet oder Anschluß an Schaltkontakt

Ir-Modul Typ 6DR-6004-6J

Ausgangsstromkreis, 4 bis 20 mA  
(Kl. 61 u. 62)

zum Anschluß an Stromkreise mit folgenden  
Höchstwerten im Normalbetrieb:  
 $U_1 = 30 \text{ V}$   
 $I_1 = 100 \text{ mA}$   
 $P_1 = 1 \text{ W}$   
wirksame innere Kapazität  $C_1 = 11 \text{ nF}$   
wirksame innere Induktivität  $L_1 = 0,22 \text{ mH}$

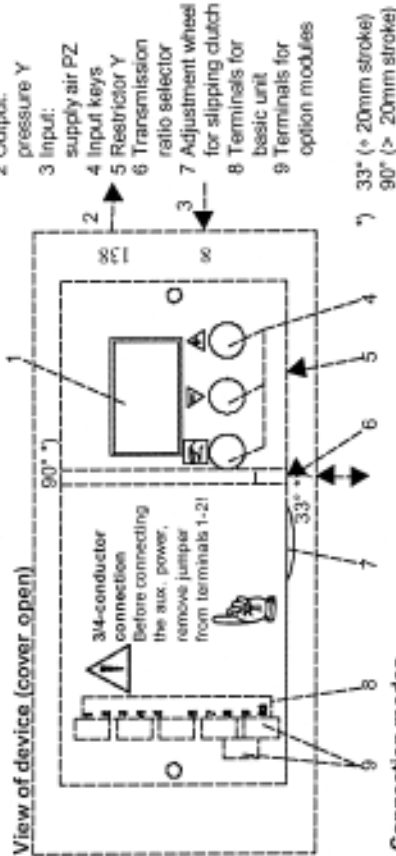
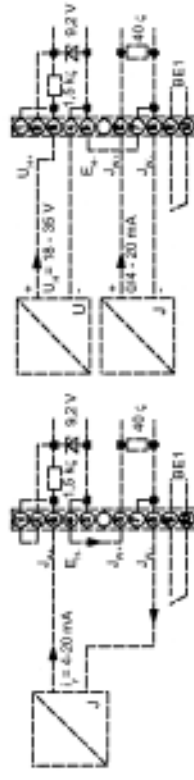
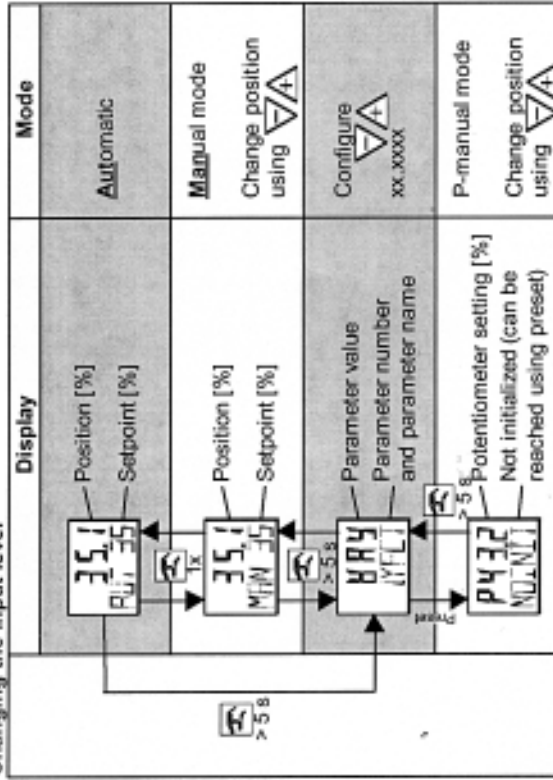
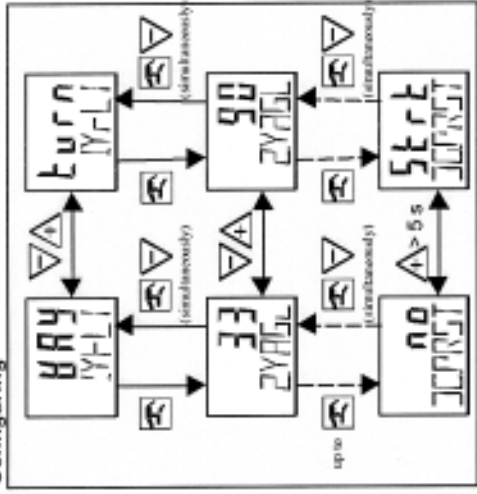
(16) Prüfungsunterlagen sind im Prüfbericht Nr. 044/677003 aufgeführt.

(17) Besondere Bedingung

keine

(18) Grundlegende Sicherheits- und Gesundheitsanforderungen

keine zusätzlichen


**Connection modes**

**Changing the input level**

**Configuring**

**Automatic initial start-up**  
(starting with factory setting)

| Step                   | Meaning |
|------------------------|---------|
| 1.) Part-turn actuator |         |
| Linear actuator        |         |
| 2.)                    |         |

\*1 See overview for possible settings

|     |  |  |
|-----|--|--|
| 3.) |  | Direction of action is determined  |
| 4.) |  | Checking of travel and adjustment of zero and stroke (from stop to stop) (determination and display of positioning time down (down up (up, x)) |
| 5.) |  | Determination and display of positioning time down (down up (up, x))   |
| 6.) |  | Determination of minimum increment length  |
| 7.) |  | Optimization of transient response   |
| 8.) |  | Initialization terminated successfully (travel in mm for lin. act.) (angle of rotation for part-turn actuators) Continue using $\nabla/\Delta$ |

(The grey values in the top display line are examples)

| Display | Meaning                                    | Possible messages  | Measures  |
|---------|--|--|---|
|         | Actuator does not move                     | Acknowledge message using $\nabla/\Delta$<br>Check restrictor (5) and open if necessary<br>Drive actuator to working range using $\nabla/\Delta$<br>Restart initialization | Acknowledge message using $\nabla/\Delta$<br>Check restrictor (5) and open if necessary<br>Drive actuator to working range using $\nabla/\Delta$<br>Restart initialization  |
|         | Down tolerance band violated               |  | Change gearing (6)<br>Continue using $\nabla/\Delta$<br>or adjust sliding clutch up to display  |
|         | Once the slipping clutch has been adjusted | Up-tolerance band violated   | Set pick-up lever into horizontal position using $\nabla/\Delta$<br>Continue using $\nabla/\Delta$  |
|         | Up-tolerance band violated                 |  | Acknowledge message using $\nabla/\Delta$<br>Set the next highest travel value on the lever<br>Restart initialization<br>Additionally possible with rotary actuators:<br>Adjusting using $\nabla/\Delta$ up to display: |
|         | Up/down span violated                      | Positioning time too short   | Acknowledge message using $\nabla/\Delta$<br>Set the next lowest travel value on the lever<br>Restart initialization<br>Increase positioning time using restrictor  |
|         | Positioning time too short                 |  | Continue using $\nabla/\Delta$<br>For fast drives continue with $\nabla/\Delta$   |

See manual for further messages

| Parameter Name  | Display                | Function  | Parameter Values  | Unit       | Factory Setting  | Customer Setting                         |     |
|---|------------------------|---|---|------------|--|--|-----|
| 1.YFCT  | LYFCT                  | Type of actuator  | Turn (part-turn actuator)<br>WAY (linear actuator)<br>LWAY (linear actuator without sine correction)  |            | WAY  |  |     |
| 2.YAGL <sup>1)</sup>  | ZYAGL                  | Rated angle of rotation of feedback<br>Set transmission ratio selector (5) appropriately (see view of device)   | 90°<br>33°  | Degrees    | 33°  |  |     |
| 3.YWAY <sup>2)</sup>  | EYWAY                  | Leverage ratio (stroke range)<br><br>must match set leverage ratio on the actuator<br><br>Driver pin must be set to the value of the actuator travel or, if this value is not scaled, to the next larger scale value. | oFF<br><br>5   10   15   20<br>(short lever 33°)<br><br>25   30   35<br>(long lever 90°)<br><br>40   50   60   70   90   110   130<br>(long lever 90°)    | mm         | oFF  |  |     |
| 4.INIT  | 4INIT                  | Initialization  | no <sup>4)</sup> ##.#<br>Stt  |            | no   |  |     |
| 5.SCUR  | 5SCUR                  | Current range of setpoint   | 0 to 20 mA<br>4 to 20 mA  | mA         | 4 mA   |  |     |
| 6.SDIR  | 6SDIR                  | Setpoint direction  | rising<br>falling   |            | rISE   |  |     |
| 7.SPRA <sup>3)</sup>  | 7SPRA                  | Setpoint for start of split range   | 0,0 to 100,0  | %          | 0,0  |  |     |
| 8.SPPE  | 8SPPE                  | Setpoint for end of split range   | 0,0 to 100,0  | %          | 100,0  |  |     |
| 9.TS  | 9TS                    | Setpoint ramp   | AUTO<br>0 to 400  | s          | 0  |  |     |
| 10.SFCT   | 10SFCT                 | Setpoint function   | linear<br>equal-percentage 1:25<br>equal-percentage 1:50<br>freely adjustable   |            | Lin  |  |     |
| 11.SL0<br>12.SL1<br>13.SL2<br>14.SL3<br>15.SL4<br>16.SL5<br>17.SL6<br>18.SL7<br>19.SL8<br>20.SL9<br>21.SL10 | 15LO<br>(exemplarisch) | Setpoint turning point at   | 0%<br>10%<br>20%<br>30%<br>40%<br>50%<br>60%<br>70%<br>80%<br>90%<br>100%   | %          | 0,0<br>28,5<br>50,0<br>62,6<br>71,5<br>78,5<br>84,1<br>88,9<br>93,1<br>96,7<br>100,0 |  |     |
| 22.DEBA   | 22DEBA                 | Dead zone of controller   | AUTO<br>0,1 to 10,0   | %          | AUTO   |  |     |
| 23.YA   | 23YA                   | Start of manipulated variable limiting  | 0,0 to 100,0  | %          | 0,0  |  |     |
| 24.YE   | 24YE                   | End of manipulated variable limiting  | 0,0 to 100,0  | %          | 100,0  |  |     |
| 25.YNRM   | 25YNRM                 | Standardization of manipulated variable   | to mech. travel<br>to flow  |            | MPoS   | MPoS                                     |     |
| 26.YCLS   | 26YCLS                 | Tight closing with manipulated variable   | Without<br>top only<br>bottom only<br>top and bottom  |            | no<br>uP:<br>:dW<br>uP:dW  | no                                       |     |
| 27.YDIR   | 27YDIR                 | Direction of manipulated variable for display   | rising<br>falling   |            | rISE<br>FALL   | rISE                                     |     |
| 28.BIN1 <sup>4)</sup>   | 28BIN1                 | Function of BI1   | none<br>only message<br>block configuring<br>block configuring and manual<br>drive valve to position up<br>drive valve to position down<br>block movement | No contact | on<br>bLc1<br>bLc2<br>uP<br>doW<br>StoP  | -on<br>-uP<br>-doW<br>-StP<br>NC contact | oFF |
| 29.BIN2 <sup>4)</sup>   | 29BIN2                 | Function des BI2  | none<br>only message<br>drive valve to position up<br>drive valve to position down<br>block movement  | No cont.   | on<br>uP<br>doW<br>StoP  | -on<br>-uP<br>-doW<br>-StP<br>NC cont.   | oFF |
| 30.AFCT <sup>4)</sup>   | 30AFCT                 | Alarm function  | without<br>A1=min, A2=max<br>A1=min, A2=min<br>A1=max, A2=max   | normal     | <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>              | Invert.                                  | oFF |
| 31.A1   | 31A1                   | Response threshold of alarm 1   | 0,0 to 100,0  | %          | 10,0   |  |     |
| 32.A2   | 32A2                   | Response threshold of alarm 2   | 0,0 to 100,0  | %          | 90,0   |  |     |
| 33.FCT <sup>4)</sup>  | 33FCT                  | Function of alarm output  | on fault<br><br>fault + not automatic<br>fault + not automatic + BI<br>(*+ means logical OR-operation)  | normal     | <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>              | inverted                                 |     |
| 34.TIM  | 34TIM                  | Monitoring time for setting of alarms   | AUTO<br>0 to 100  | s          | AUTO   |  |     |
| 35.LIM  | 35LIM                  | Response threshold of alarm   | AUTO<br>0,0 to 100,0  | %          | AUTO   |  |     |
| 36.PRST   | 36PRST                 | Preset (factory setting)<br>"no" nothing activated<br>"Stt" start of factory setting after pressing key for 5 s<br>"oCAY" display following successfully factory setting<br>Caution: Preset results in "NO INIT"      | No<br>Stt<br>oCAY   |            | oCAY   |  |     |

<sup>1)</sup> If "turn" is selected, you cannot set 33°

<sup>2)</sup> Parameter does not appear if 1.YFCT = turn has been selected

<sup>3)</sup> Turning points only appear with selection: 10.SFCT=FrEE

<sup>4)</sup> Alternatively "no" if initialization has not yet been carried out

<sup>5)</sup> NC contact means

NO contact means

<sup>6)</sup> Normal means

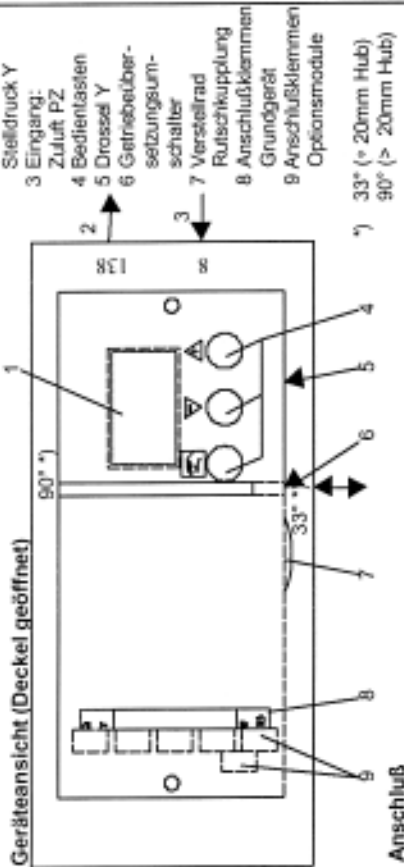
Inverted means

action with opened switch or Low level

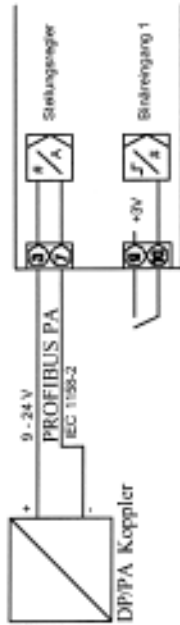
action with closed switch or High level

High level without fault

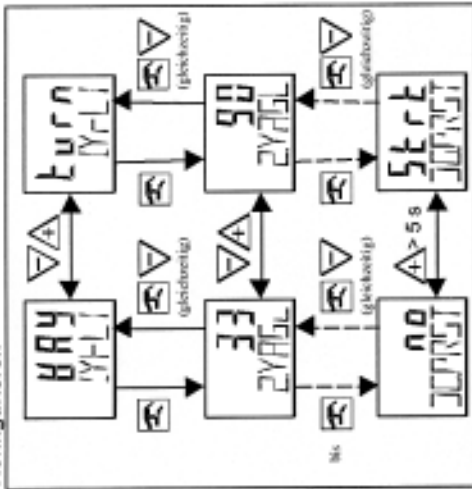
Low level without fault



Anschluß



Konfigurieren



Automatische Erstinbetriebnahme

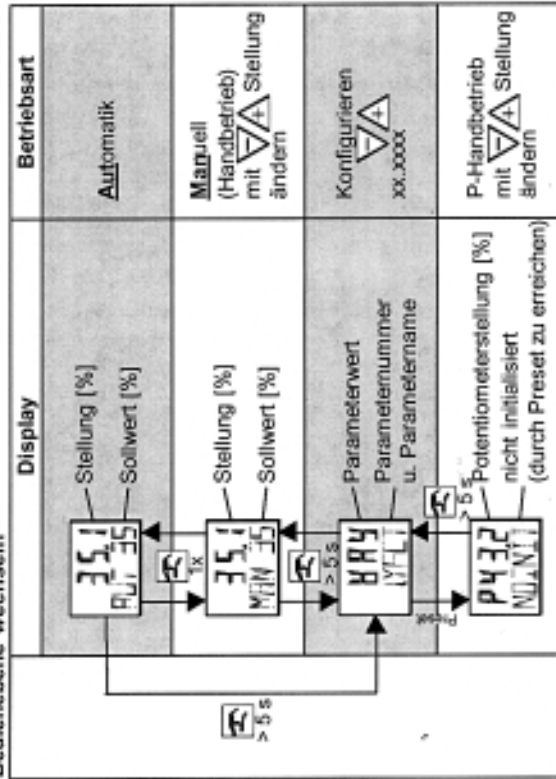
(ausgehend von Werkseinstellung)

| Schritt                               | Bedeutung  |
|---------------------------------------|--|
| 1.) Schwenkantrieb                    | turn (YFL) 90 (ZYP) 33 (ZYP) 50 (ZYP) 50 (ZYP) 50 (ZYP) 50 (ZYP) 50 (ZYP) 50 (ZYP)   |
| 2.) Schubantrieb                      | 50 (ZYP) 50 (ZYP) 33 (ZYP) 50 (ZYP) 50 (ZYP) 50 (ZYP) 50 (ZYP) 50 (ZYP) 50 (ZYP)   |
| * mögliche Einstellungen s. Rückseite |  |
| 3.)                                   | A > 5 s drücken<br>Restl. Schritte laufen autom. ab  |
| 4.)                                   | Wirksinn wird ermittelt<br>Stellwegkontrolle und Abgleich von Nullpunkt und Hub (Anschlag - Anschlag)<br>Ermittlung und Anzeige der Sollzeit (z.B. 2.8 s) (z.B. 2.8 s) |
| 5.)                                   | Ermittlung der minimalen Stellenerkmale  |
| 6.)                                   | Optimierung des Einschwingverhaltens   |
| 7.)                                   | Initialisierung wurde erfolgreich beendet (Weg [mm] bei Schubantrieben, Drehwinkel bei Schwenkantrieben weiter mit A)  |
| 8.)                                   | (Die grauen Werte in der oberen Displayzeile sind exemplarisch)  |

| Mögliche Meldungen |   |   |
|--------------------|---|---|
| Anzeige            | Bedeutung                                   | Maßnahmen   |
| P 324 (YFL) 5      | Antrieb bewegt sich nicht                   | Mit A Meldung quittieren Drossel (5) prüfen und evtl. öffnen mit V Antrieb in den Arbeitsbereich fahren Initialisierung neu starten   |
| P 294 (YFL) 1      | down-Toleranzband unter- bzw. überschritten | Getrieb (6) umschalten weiter mit: A oder Rutschkupplung verstellen bis Anzeige dann nur P 78 (YFL) 1 weiter mit: V   |
| SEL (YFL) 1        | Wenn die Rutschkupplung verstellt wurde     | Abgriffhebel waagrecht stellen über V A weiter mit: S   |
| P 985 (YFL) 5      | up-Toleranzband überschritten               | Mit A Meldung quittieren auf dem Hebel den nächstgrößeren Hubwert einstellen Initialisierung neu starten bei Drehantrieben zusätzlich möglich: über V A verstellen bis Anzeige: P 925 (YFL) 5 weiter mit: S |
| P 153 (YFL) 1      | up-down-Spanne unterschritten               | Mit A Meldung quittieren auf dem Hebel den nächstkleineren Hubwert einstellen Initialisierung neu starten   |
| U 13 (NOZZLE) 1    | Stellzeit zu kurz                           | Stellzeit mittels der Drossel vergrößern weiter mit: A Bei schnellen Antrieben weiter mit: V  |

weitere Meldungen siehe Gerätehandbuch

Bedienebene wechseln



| Parameter Name                                     | Display                | Function  | Parameter Values  | Unit   | Factory Setting                           | Customer Setting |
|--|------------------------|---|---|--|---|------------------|
| 1.YFCT   | LYFCT                  | Type of actuator  | Turn (part-turn actuator)<br>WAY (linear actuator)<br>LWAY (linear actuator without sine correction)  |  | WAY                                       |                  |
| 2.YAGL <sup>1)</sup>                               | ZYAGL                  | Rated angle of rotation of feedback<br>Set transmission ratio selector (B) appropriately (see view of device)   | 90°<br>33°  | Degrees  | 33°                                       |                  |
| 3.YWAY <sup>2)</sup>                               | ZYWAY                  | Stroke range (Setting optional)<br>If used, must match set leverage ratio on the actuator.<br><br>Driver pin must be set to the value of the actuator travel or, if this value is not scaled, to the next larger scale value. | off<br>5   10   15   20<br>(short lever 33°)<br>25   30   35<br>(short lever 90°)<br>40   50   60   70   80   110   130<br>(long lever 90°)               | mm   | off                                       |                  |
| 4.INIT   | ZINIT                  | Initialization  | no / ##.#<br>Stn  |  | no  |                  |
| 5.SDIR   | ZSDIR                  | Setpoint direction  | rising<br>falling<br>rISE<br>FALL   |  | rISE                                      |                  |
| 6.TSI  | ZTSI                   | Setpoint ramp OPEN  | Auto<br>0 to 400  | s  | 0   |                  |
| 7.TSD <sup>3)</sup>                                | ZTSD                   | Setpoint ramp CLOSE   | 0 to 400  | s  | 0   |                  |
| 8.SFCT   | ZSFCT                  | Setpoint function   | linear<br>equal-percentage 1:25, 1:33, 1:50<br>inverse equal-percentage 25:1, 33:1, 50:1<br>Freely adjustable   | 1:25<br>n1:25<br>Lin<br>1:33<br>n1:33<br>1:50<br>n1:50<br>FREE   | Lin                                       |                  |
| 09.SL0<br>10.SL1<br>usw. bis<br>28.SL19<br>29.SL20 | ZSL0<br>(exemplarisch) | Setpoint turning point at   | 0%<br>5%<br>until<br>95%<br>100%  | 0,0 to 100,0   | %<br>0,0<br>5,0<br>until<br>95,0<br>100,0 |                  |
| 30.DEBA  | ZDEBA                  | Dead zone of controller   | Auto<br>0,1 to 10,0   | %  | Auto                                      |                  |
| 31.YA  | ZYA                    | Start of manipulated variable limiting  | 0,0 to 100,0  | %  | 0,0                                       |                  |
| 32.YE  | ZYE                    | End of manipulated variable limiting  | 0,0 to 100,0  | %  | 100,0                                     |                  |
| 33.YNRM  | ZYNRM                  | Standardization of manipulated variable   | to mech. travel<br>to flow  | MPoS<br>FLow   | MPoS                                      |                  |
| 34.YCLS  | ZYCLS                  | Tight closing with manipulated variable   | without<br>top only<br>bottom only<br>top and bottom  | no<br>uP:<br>-dW<br>uP-dW  | no  |                  |
| 35.YCDO  | ZYCDO                  | Value for tight closing below   | 0,0 to 100,0  |  | 0,0                                       |                  |
| 36.YCUP  | ZYCUP                  | Value for tight closing above   | 0,0 to 100,0  |  | 100,0                                     |                  |
| 37.BIN1 <sup>4)</sup>                              | ZBIN1                  | Function of BI1   | none<br>only message<br>block configuring<br>block configuring and manual<br>drive valve to position up<br>drive valve to position down<br>block movement | off<br>No contact<br>on<br>bLc1<br>bLc2<br>uP<br>doW<br>StoP<br>-on<br>-uP<br>-doW<br>-StP<br>NC contact | off                                       |                  |
| 38.BIN2 <sup>4)</sup>                              | ZBIN2                  | Function of BI2   | none<br>only message<br>drive valve to position up<br>drive valve to position down<br>block movement  | off<br>No cont.<br>on<br>uP<br>doW<br>StoP<br>-on<br>-uP<br>-doW<br>-StP<br>NC cont.                     | off                                       |                  |
| 39.AFCT <sup>4)</sup>                              | ZAFCT                  | Alarm function  | Without<br>A1=min, A2=max<br>A1=min, A2=min<br>A1=max, A2=max   | off<br>normal<br>X<br>X<br>Invert  | off                                       |                  |
| 40.A1  | ZA1                    | Response threshold of alarm 1   | 0,0 to 100,0  | %  | 10,0                                      |                  |
| 41.A2  | ZA2                    | Response threshold of alarm 2   | 0,0 to 100,0  | %  | 90,0                                      |                  |
| 42.FCT <sup>4)</sup>                               | ZFCT                   | Function of alarm output  | on fault<br>fault + not automatic<br>fault + not automatic + BI<br>(*+ means logical OR-operation)  | normal<br>X<br>X<br>Invert   |   |                  |
| 43.FIM   | ZFIM                   | Monitoring time for setting of alarms   | Auto<br>0 to 100  | s  | Auto                                      |                  |
| 44.FIM   | ZFIM                   | Response threshold of alarm   | Auto<br>0,0 to 100,0  | %  | Auto                                      |                  |
| 45.PRST  | ZPRST                  | Preset (factory setting)<br>"no" nothing activated<br>"Stn" start of factory setting<br>"oCAY" display after pressing key for 5 s<br>Caution: Preset results in "NO INIT"   | No<br>Stn<br>oCAY   |  | no  |                  |
| 46.FSTY  | ZFSTY                  | Safety position:<br>parameterized safety setpoint<br>last setpoint<br>open venting valve  | FSVL<br>FSPP<br>FSAC  |  | FSVL                                      |                  |
| 47.FSTI  | ZFSTI                  | Monitoring time for setting the safety position   | 1 to 100  | s  | 30  |                  |
| 48.FSVL  | ZFSVL                  | Safety setpoint   | 0,0 to 100,0  | %  | 0,0                                       |                  |
| 49.STNR  | ZSTNR                  | Station number  | 0 to 126  |  | 126                                       |                  |

<sup>1)</sup> If "turn" is selected, you cannot set 33°

<sup>2)</sup> Parameter does not appear if 1.YFCT = turn has been selected

<sup>3)</sup> if TSI=Auto not active

<sup>4)</sup> Turning points only appear with selection: 10.SFCT=FREE

<sup>5)</sup> NC contact means action with opened switch or Low level

<sup>6)</sup> NO contact means action with closed switch or High level

<sup>7)</sup> Normal means High level without fault

<sup>8)</sup> Inverted means Low level without fault

## 9 Appendix

### 9.1 Installation of options

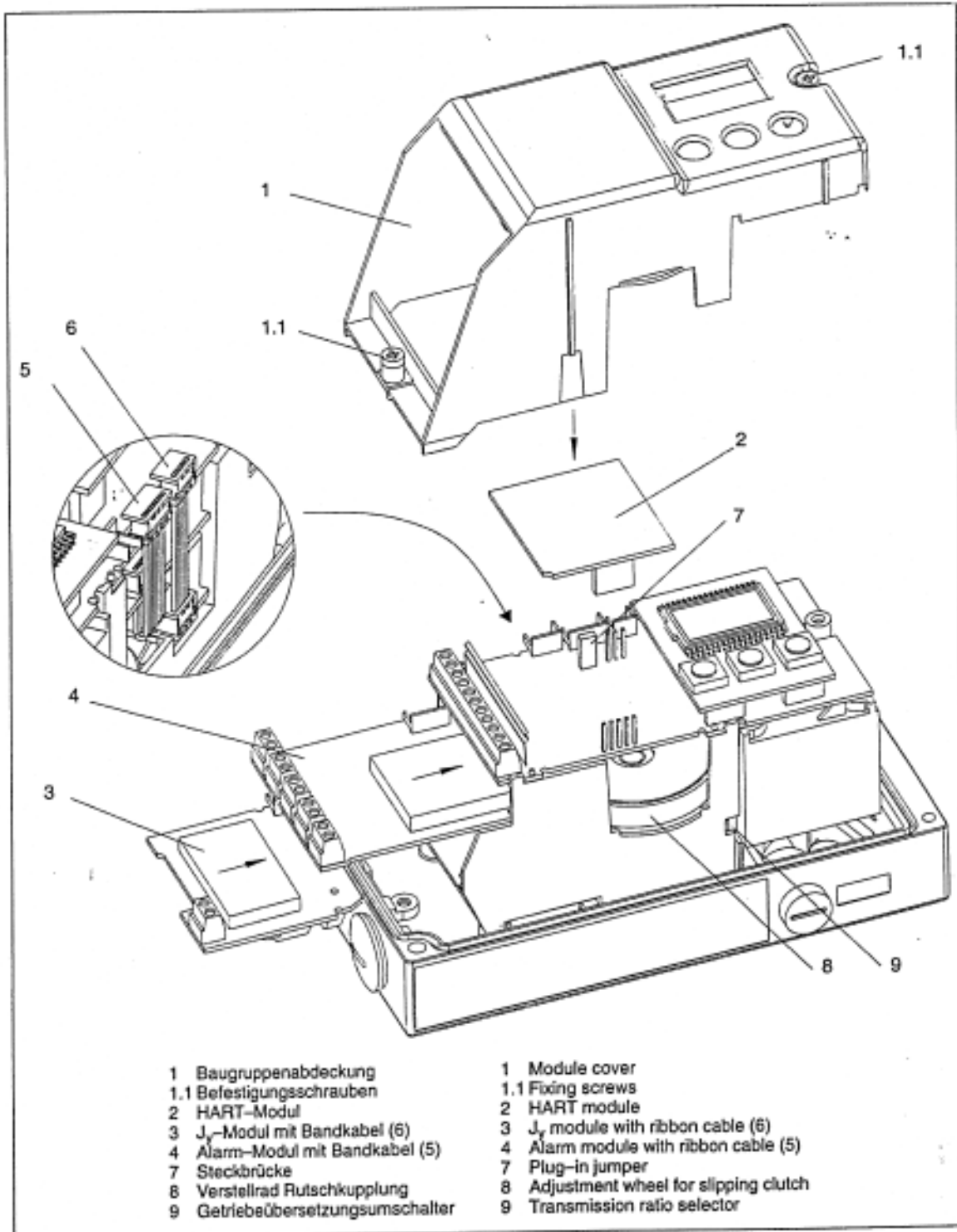
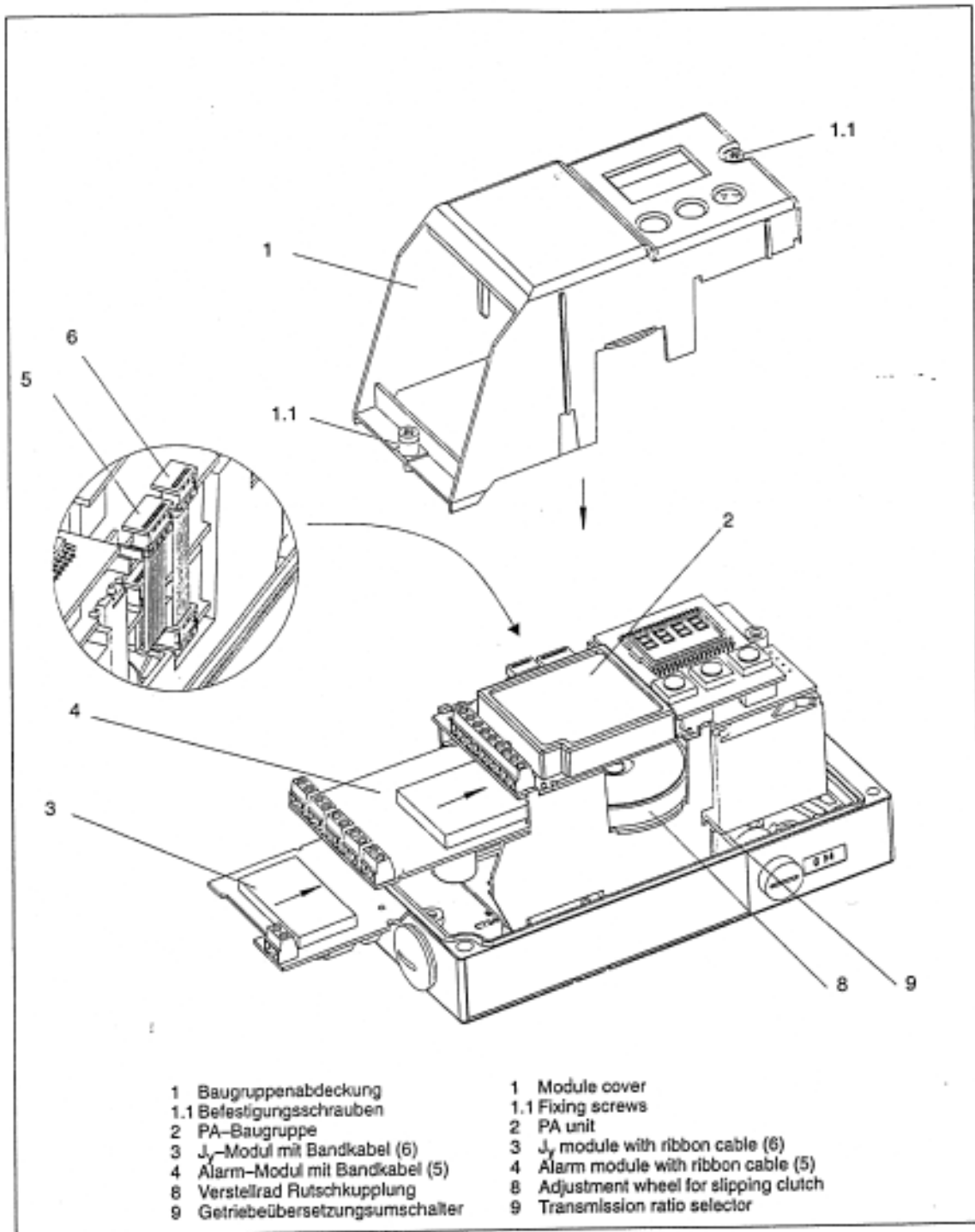


Fig. 4 - Installation of options, devices without PROFIBUS PA



**Fig. 5 - Installation of options, devices without PROFIBUS PA**

## 9.2 Electric connection of basic device without PROFIBUS PA

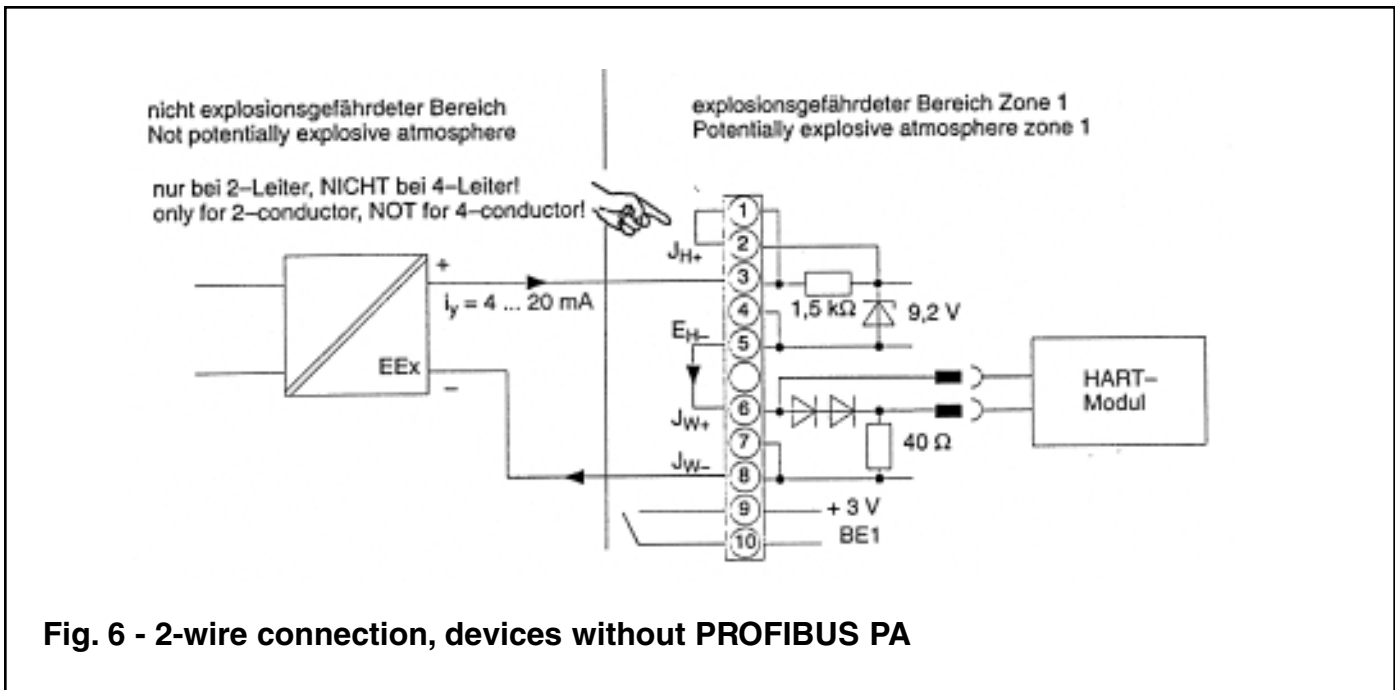


Fig. 6 - 2-wire connection, devices without PROFIBUS PA

### Caution



For 3/4 conductor operation, always remove jumpers, terminal 1-2 before connecting the auxiliary power.

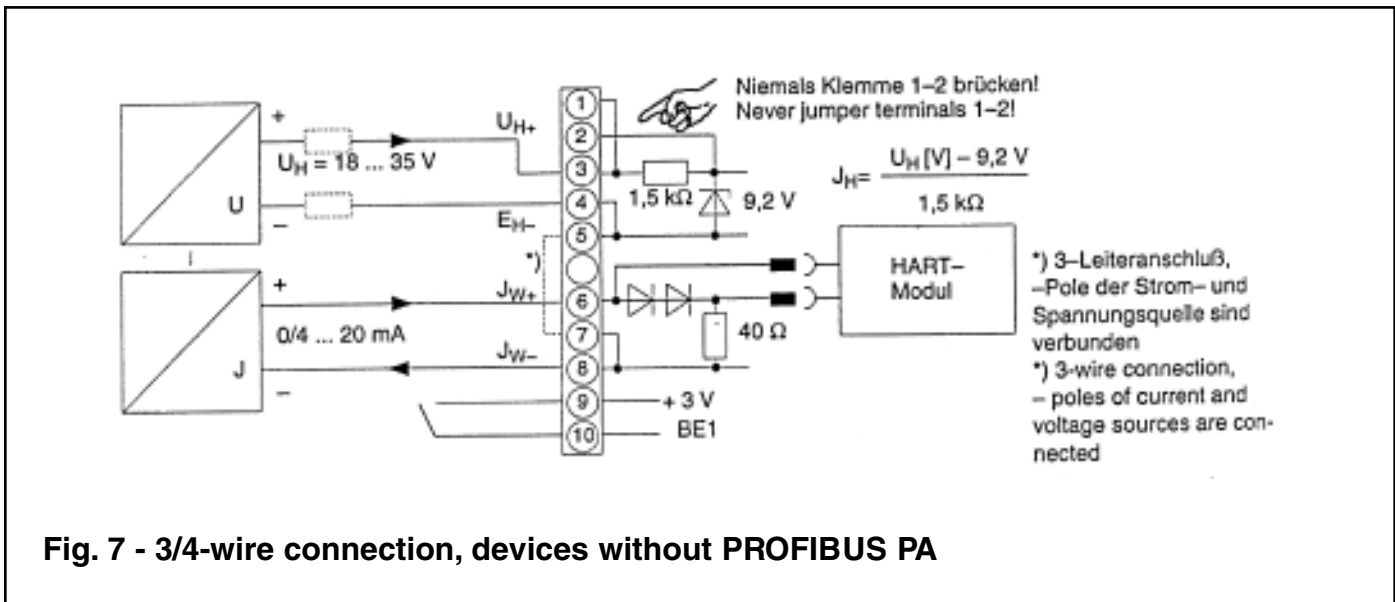
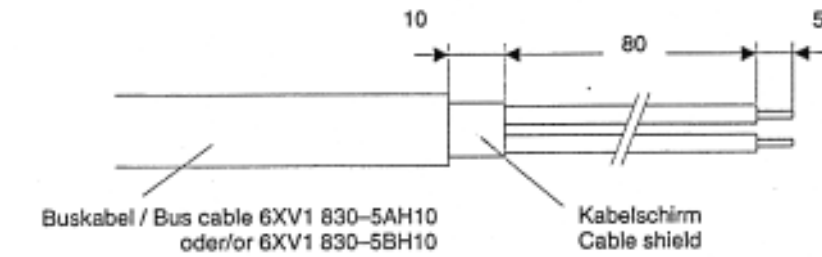


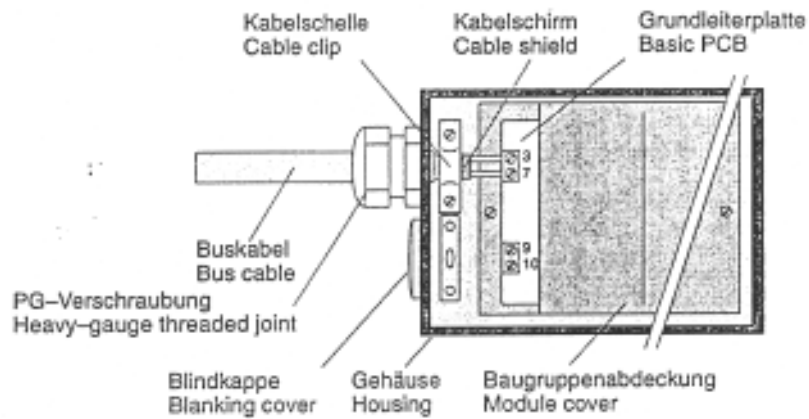
Fig. 7 - 3/4-wire connection, devices without PROFIBUS PA



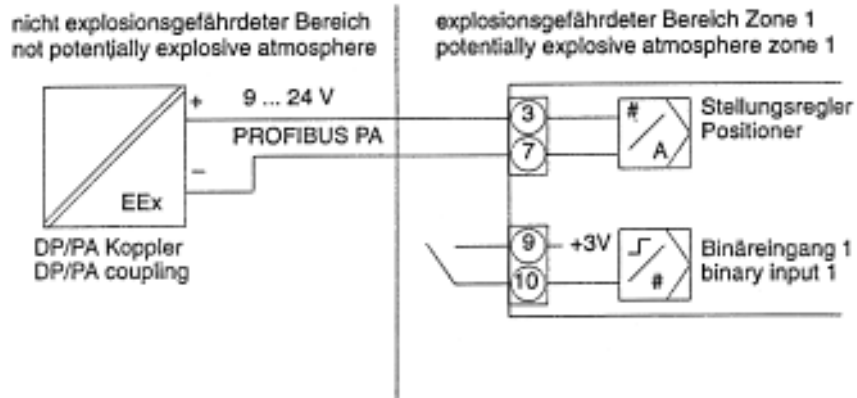
### 9.3 Electric connection of basic device with PROFIBUS PA



**Fig. 8 - Preparation of bus cable, devices with PROFIBUS PA**



**Fig. 9 - Bus cable connection, devices with PROFIBUS PA**



**Fig. 10 - Electric connection of basic device with PROFIBUS PA**

## 9.4 Electric connection of options

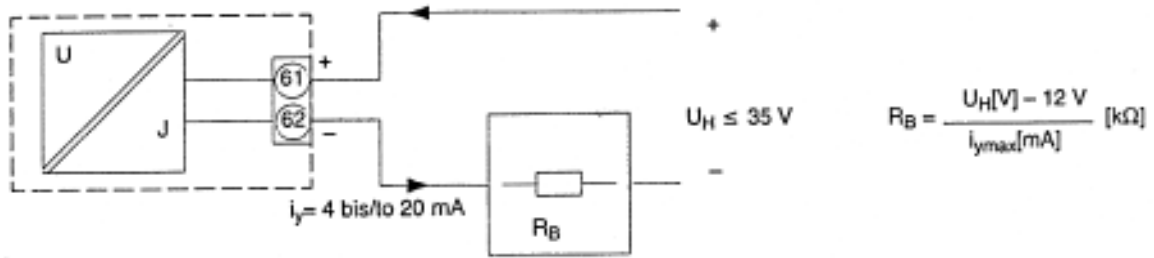


Fig. 11 - J<sub>y</sub> - module, not explosion-proof

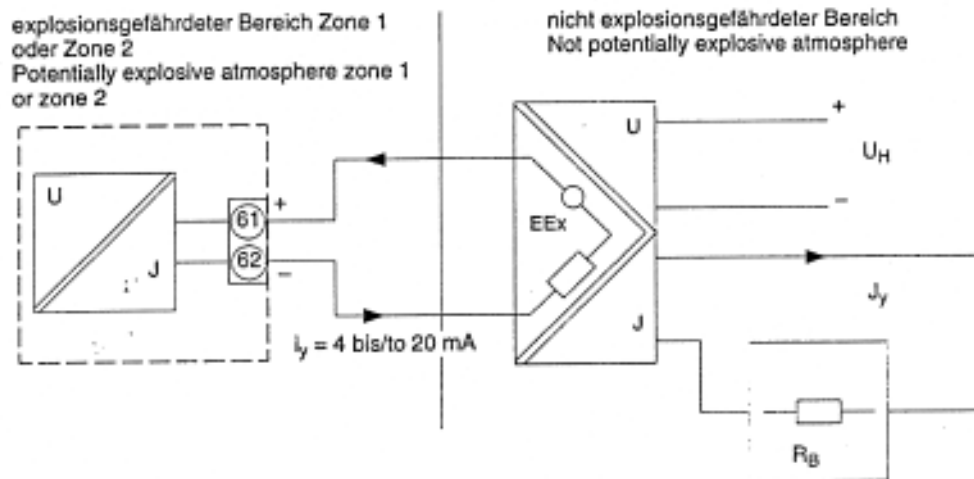
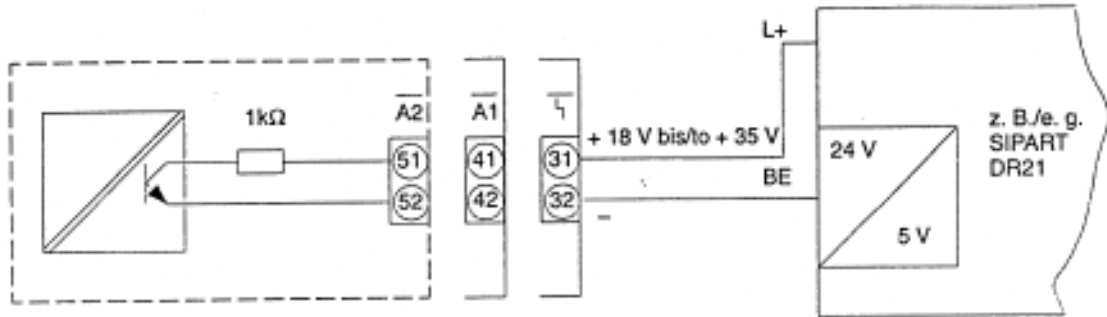
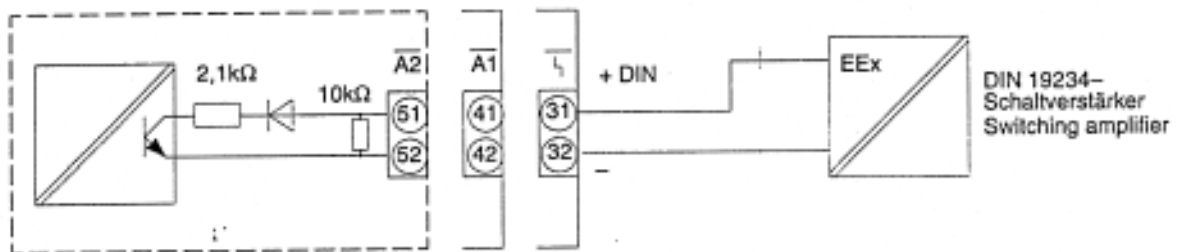


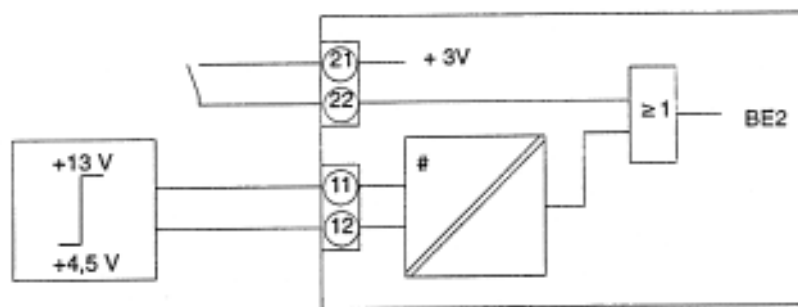
Fig. 12 - J<sub>y</sub> - module, not explosion-proof



**Fig. 13 - Alarm module: binary outputs, not explosion-proof**

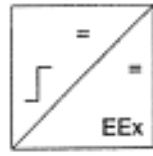


**Fig. 14 - Alarm module: binary outputs, explosion-proof**

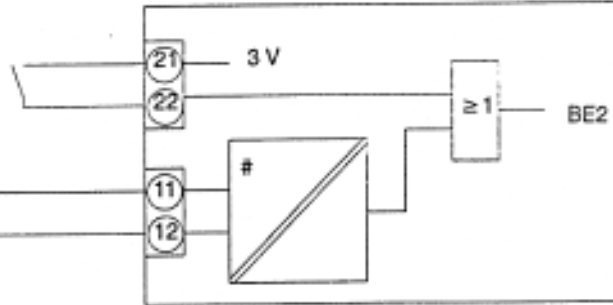


**Fig. 15 - Alarm module: binary output BE2, not explosion-proof**

nicht explosionsgefährdeter Bereich  
Not potentially explosive atmosphere



explosionsgefährdeter Bereich Zone 1 oder Zone 2  
Potentially explosive atmosphere zone 1 or zone 2



**Fig. 16 - Alarm module: binary output BE2, explosion-proof**

## 9.5 Pneumatic connection

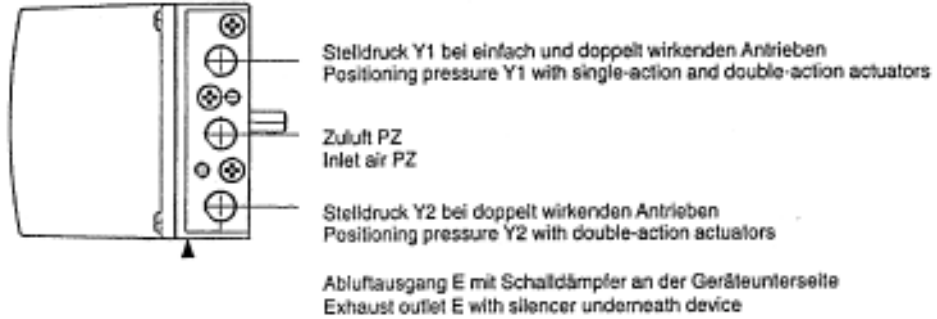


Fig. 17 - Pneumatic connection

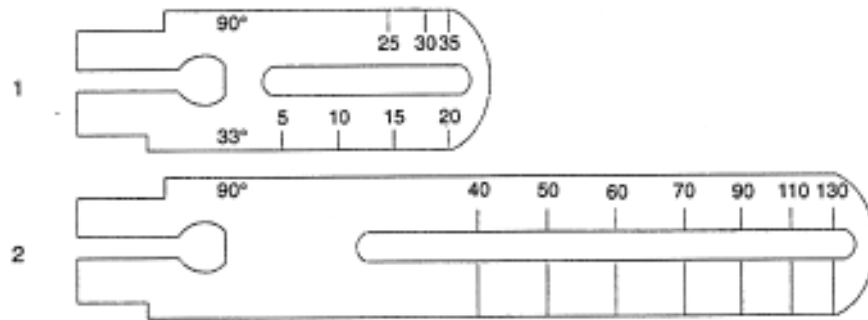


Fig. 18 - NAMUR lever 3-35 mm (1), NAMUR lever . 35-130 mm (2)

## 10 Type code

