Operating Instruction OI/EDP300-EN Rev. A

PositionMaster EDP300
Electro-Pneumatic Positioner

Power and productivity
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ABB

PositionMaster EDP300
Electro-Pneumatic Positioner

Operating Instruction
OI/EDP300-EN

Rev. A
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Translation of the original instruction

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Contents

1 Safety

1.1 General information and notes for the reader

You must read these instructions carefully prior to installing and commissioning the device.
These instructions are an important part of the product and must be kept for future reference.
These instructions are intended as an overview and do not contain detailed information on all designs for this product or every possible aspect of installation, operation and maintenance.
For additional information or if specific problems occur that are not discussed in these instructions, contact the manufacturer.
The content of these instructions is neither part of any previous or existing agreement, promise or legal relationship nor is it intended to change the same.
This product is built based on state-of-the-art technology and is operationally safe. It has been tested and left the factory in perfect working order from a safety perspective. The information in the manual must be observed and followed in order to maintain this state throughout the period of operation.
Modifications and repairs to the product may only be performed if expressly permitted by these instructions.
Only by observing all of the safety instructions and all safety / warning symbols in these instructions can optimum protection of both personnel and the environment, as well as safe and fault-free operation of the device, be ensured.
Information and symbols directly on the product must be observed. They may not be removed and must be fully legible at all times.

1.2 Intended use

Positioning of pneumatically controlled actuators; designed for mounting on linear and part-turn actuators.
The device is designed for use exclusively within the stated values on the name plate and in the specifications (see "Specifications" chapter).

- The maximum operating temperature must not be exceeded.
- The permissible ambient temperature must not be exceeded.
- The housing's degree of protection must be observed during operation.

1.3 Target groups and qualifications

Installation, commissioning and maintenance of the product may only be performed by trained specialist personnel who have been authorized by the plant operator to do so. The specialist personnel must have read and understood the manual and comply with its instructions.
The operators must strictly observe the applicable national regulations with regards to installation, function tests, repairs, and maintenance of electrical products.

1.4 Warranty provisions

Using the device in a manner that does not fall within the scope of its intended use, disregarding this manual, using underqualified personnel, or making unauthorized alterations releases the manufacturer from liability for any resulting damage. This renders the manufacturer's warranty null and void.

1.5 Plates and symbols

1.5.1 Safety / warning symbols, note symbols

DANGER – Serious damage to health / risk to life!
This symbol in conjunction with the signal word “Danger“ indicates an imminent danger. Failure to observe this safety information will result in death or severe injury.

DANGER – Serious damage to health / risk to life!
This symbol in conjunction with the signal word “Danger” indicates an imminent electrical hazard. Failure to observe this safety information will result in death or severe injury.

WARNING – Body injury!
This symbol in conjunction with the signal word “Warning” indicates a possibly dangerous situation. Failure to observe this safety information may result in death or severe injury.

WARNING – Body injury!
This symbol in conjunction with the signal word “Warning” indicates a potential electrical hazard. Failure to observe this safety information may result in death or severe injury.

CAUTION – Minor injury!
This symbol in conjunction with the signal word “Caution“ indicates a possibly dangerous situation. Failure to observe this safety information may result in minor or moderate injury. This may also be used for property damage warnings.

ATTENTION – Property damage!
The symbol indicates a potentially damaging situation.
Failure to observe this safety information may result in damage to or destruction of the product and / or other system components.

IMPORTANT (NOTE)
This symbol indicates operator tips, particularly useful information, or important information about the product or its further uses. It does not indicate a dangerous or damaging situation.

1.6 Name plate

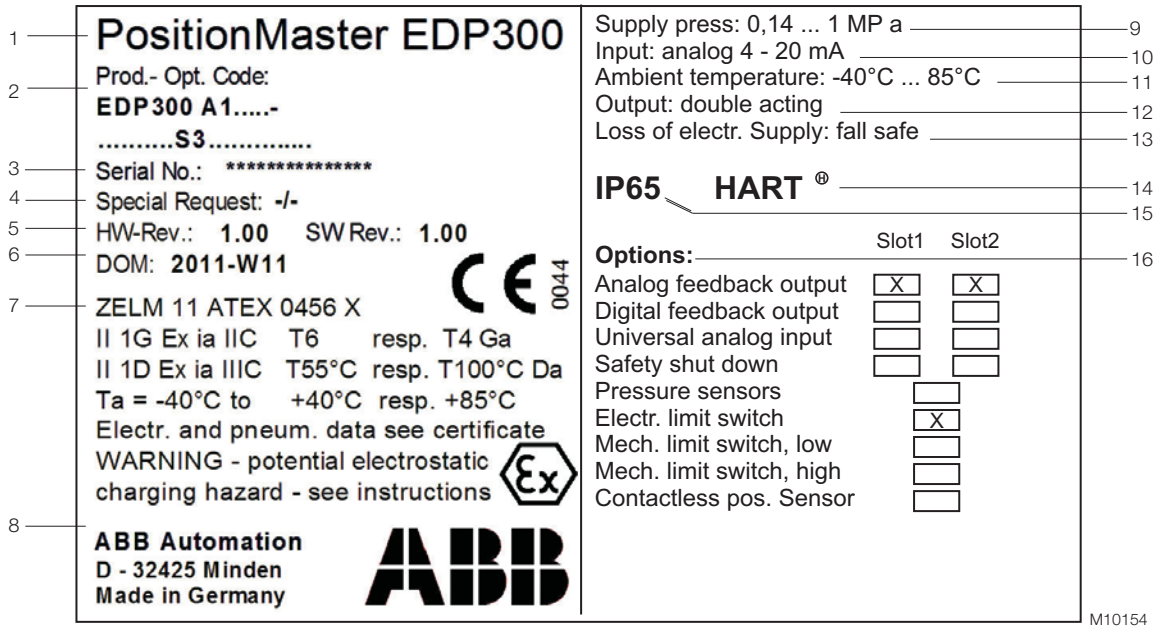


Fig. 1: Name plate (sample)

1 Full type designation | 2 Order code | 3 Serial number | 4 Special version | 5 Hardware revision / Software revision | 6 Date of manufacture | 7 Explosion protection | 8 Manufacturer | 9 Supply pressure | 10 Input signal | 11 Ambient temperature range | 12 Output | 13 Safety function (no current) | 14 Communication protocol | 15 Degree of protection | 16 Options

1.7 Transport safety instructions

Observe the following instructions:

— Do not expose the device to moisture during transport. Pack the device accordingly.

— Pack the device so that it is protected against vibrations during transport, e.g., by using air-cushioned packaging.

1.8 Storage conditions

— The device must be stored in dry and dust-free conditions. The device is also protected by a desiccant in the packaging.

— The desiccant guarantees sufficient protection for approximately 150 days. It can be regenerated at a temperature of 90 °C (114 °F) within 4 h.

— Remove the desiccant prior to commissioning the actuator or the electronics.

— If you intend to store or transport the device for a prolonged period (> 6 months), we recommend that you wrap it in plastic film and add desiccant.

— The permissible storage and transport temperatures must be observed.

— Protect uncovered metallic surfaces with an appropriate long-term corrosion inhibitor.

— The relevant long-term storage temperatures must be observed.

— In principle, the devices may be stored for an unlimited period. However, the warranty conditions stipulated in the order confirmation of the supplier apply.

1.9 Installation safety instructions

CAUTION – Minor injuries
Incorrect parameter valves can cause the valve to move unexpectedly. This can lead to process failures and result in injuries.
Before recommissioning a positioner that was previously in use at another location, the device must always be reset to its factory settings. Never start Autoadjust before restoring the factory settings.

- Only qualified specialists who have been trained for these tasks are authorized to install and adjust the device, and to establish the electrical connection.
- When carrying out any work on the device, always observe the local accident prevention regulations and the regulations concerning the construction of technical installations.

1.10 Safety instructions for electrical installation

The electrical connection may only be established by authorized specialist personnel and in accordance with the electrical circuit diagrams.
The electrical connection information in the manual for the electronic unit must be observed; otherwise, the degree of electrical protection may be adversely affected.
Safe isolation of electrical circuits which are dangerous if touched is only ensured if the connected devices satisfy the requirements of DIN EN 61140 (VDE 0140 Part 1) (basic requirements for safe isolation).
To ensure safe isolation, install supply lines so that they are separate from electrical circuits which are dangerous if touched, or implement additional isolation measures for them.

1.11 Safety instructions for operation

Before switching on the device, make sure that your installation complies with the environmental conditions listed in the chapter "Specifications" or on the data sheet.
If there is a chance that safe operation is no longer possible, take the device out of operation and secure it against unintended startup.

Prior to installation, check the devices for possible damage that may have occurred as a result of improper transport. Details of any damage that has occurred in transit must be recorded on the transport documents. All claims for damages must be submitted to the shipper without delay and before installation.

1.12 Returning devices

Use the original packaging or a secure transport container of an appropriate type if you need to return the device for repair or recalibration purposes. Fill out the return form (see the Appendix) and include this with the device.
According to the EU Directive governing hazardous materials, the owner of hazardous waste is responsible for its disposal or must observe the following regulations for shipping purposes:
All devices delivered to ABB Automation Products GmbH must be free from any hazardous materials (acids, alkalis, solvents, etc.).

Please contact Customer Center Service acc. to page 2 for nearest service location.

1.13 Integrated management system

ABB Automation Products GmbH operates an integrated management system, consisting of:

— Quality management system to ISO 9001:2008
— Environmental management system to ISO 14001:2004
— Occupational health and safety management system to BS OHSAS 18001:2007 and
— Data and information protection management system

Environmental awareness is an important part of our company policy.
Our products and solutions are intended to have minimum impact on the environment and on people during manufacturing, storage, transport, use, and disposal.
This includes the environmentally-friendly use of natural resources. We conduct an open dialog with the public through our publications.

1.14 Disposal

This product is manufactured from materials that can be recycled by specialist recycling companies.

1.14.1 Information on WEEE Directive 2002/96/EC (Waste Electrical and Electronic Equipment)

This product is not subject to WEEE Directive 2002/96/EC or relevant national laws (e.g., ElektroG in Germany).
The product must be disposed of at a specialist recycling facility. Do not use municipal garbage collection points.
According to the WEEE Directive 2002/96/EC, only products used in private applications may be disposed of at municipal garbage collection points. Proper disposal prevents negative effects on people and the environment, and supports the reuse of valuable raw materials.
If it is not possible to dispose of old equipment properly, ABB Service can accept and dispose of returns for a fee.

1.14.2 RoHS Directive 2002/95/EC

With the Electrical and Electronic Equipment Act (ElektroG) in Germany, the European Directives 2002/96/EC (WEEE) and 2002/95/EC (RoHS) are translated into national law. ElektroG defines the products that are subject to regulated collection and disposal or reuse in the event of disposal or at the end of their service life. ElektroG also prohibits the marketing of electrical and electronic equipment that contains certain amounts of lead, cadmium, mercury, hexavalent chromium, polybrominated biphenyls (PBB), and polybrominated diphenyl ethers (PBDE) (also known as hazardous substances with restricted uses).
The products provided by ABB Automation Products GmbH do not fall within the current scope of regulations on hazardous substances with restricted uses or the directive on waste electrical and electronic equipment according to ElektroG. If the necessary components are available on the market at the right time, in the future these substances will no longer be used in new product development.

2 Use in potentially explosive atmospheres

Depending on the type of explosion protection, an Ex name plate is attached to the positioner, to the left of the main name plate. It indicates the level of explosion protection and the device's relevant Ex certificate.

Requirements / preconditions for safe operation of the positioner:

IMPORTANT (NOTE)
Observe the device's applicable technical data and special conditions in accordance with the relevant certificate supplied with it.

— Manipulation of the device by users is not permitted. Modifications to the device may only be performed by the manufacturer or an explosion protection specialist.
— The device may only be supplied with instrument air that is free of oil, water, and dust.

IMPORTANT (NOTE)
Operation with flammable gas
— During operation with flammable gas, the device must be used in accordance with the approval specifications.
— Only the intrinsically safe design has been approved for operation with natural gas. The pneumatic outputs must be vented in non-hazardous areas.
— The maximum ambient temperature must not exceed 60°C (140°F).
— During operation with flammable gas in type of protection Ex n, the device may only be operated with approved cable glands.

IMPORTANT (NOTE)
Use in areas with combustible dust
— To prevent loss of its type of protection, the housing may not be opened.
— Only use cable glands that are approved for the type of protection and correspond to degree of protection ≥ IP 6X.
— Avoid hazardous sliding brush discharges.

IMPORTANT (NOTE)
Operation in temperature class T6
During operation in temperature class T6, when the equipment is partially or fully depressurized, ensure that there is no possibility of an explosive atmosphere getting into the pneumatic system or that any explosive atmosphere is removed prior to compression by taking suitable action.

When starting up in temperature class T6, flush the pneumatic system with 1.4 (+/- 0.1) bar until all traces of explosive mixture have been removed (at least 5 minutes). Ventilate and evacuate the EDP300 fully several times.

3 Function and System Design

3.1 Schematic representation

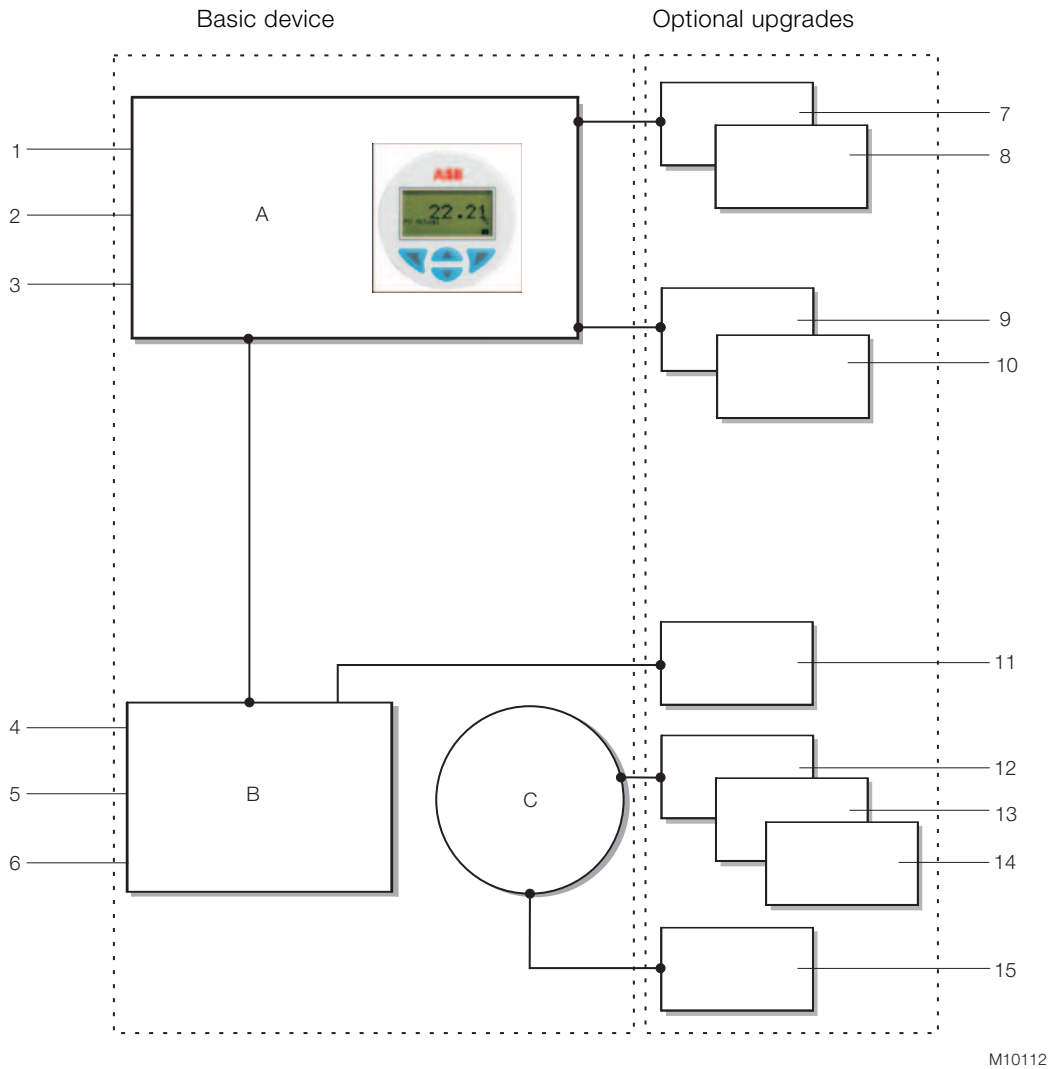


Fig. 2: Schematic diagram of the positioner

A Electronic | B Pneumatic | C Position sensor |
1 4 ... 20 mA / bus connection | 2 Digital input | 3 Alarm output | 4 Supply air | 5 Output 1 | 6 Output 2 |
7 Analog feedback | 8 Binary feedback | 9 Shutdown module | 10 Universal input | 11 Pressure sensor |
12 Mechanical end position switch 24 V microswitch | 13 Proximity switches (NC) | 14 Proximity switches (NO) |
15 Optical position indicator

3.2 Functionality

The PositionMaster EDP300 is an electronically configurable positioner with communication capabilities designed for mounting on pneumatic linear or part-turn actuators.
Fully automatic determination of the control parameters and adaptation to the positioner allow for considerable time savings as well as optimum control behavior.

4 Mounting

CAUTION – Minor injuries
Incorrect parameter valves can cause the valve to move unexpectedly. This can lead to process failures and result in injuries.
Before recommissioning a positioner that was previously in use at another location, the device must always be reset to its factory settings. Never start Autoadjust before restoring the factory settings.

4.1 Operating conditions at installation site

IMPORTANT (NOTE)
Before installation, check whether the positioner meets the control and safety requirements for the installation location (actuator or valve).
See the "Technical Data" chapter, page 56.

4.2 Mechanical mounting

4.2.1 General information

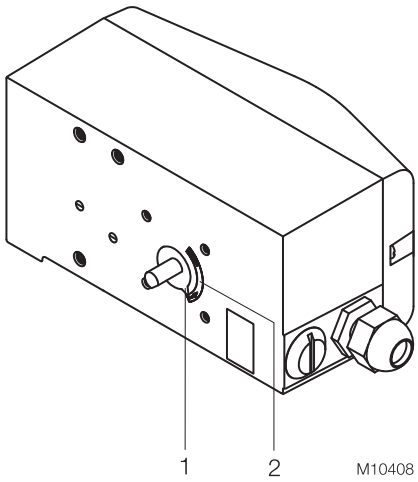


Fig. 3: Working range

The arrow (1) on the positioner feedback shaft (position feedback point) must move through the area marked by the arrows (2).

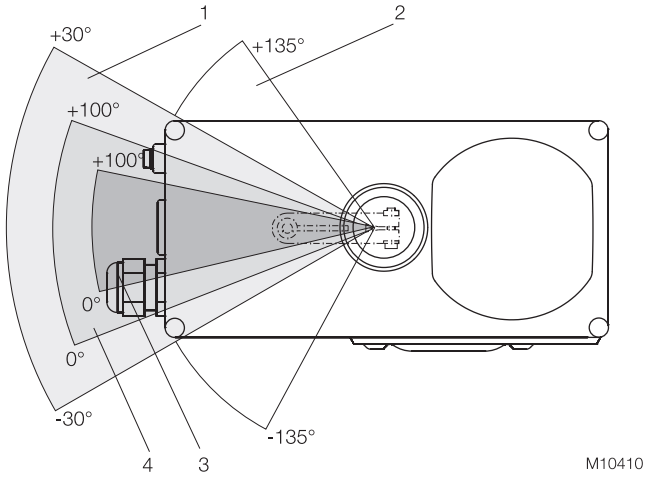


Fig. 4: Positioner range

1 Sensor range for linear actuators |
2 Sensor range for part-turn actuators |
3 Working range for linear actuators |
4 Working range for part-turn actuators

IMPORTANT (NOTE)
During installation, make sure that the travel or rotation angle for position feedback is implemented correctly.

The maximum rotation angle for position feedback is 60° when installed on linear actuators and 270° on part-turn actuators. The minimum angle is always 25°.

4.2.2 Mounting on linear actuators

For mounting on a linear actuator in accordance with DIN / IEC 534 (lateral mounting as per NAMUR), the following mounting kit is available:

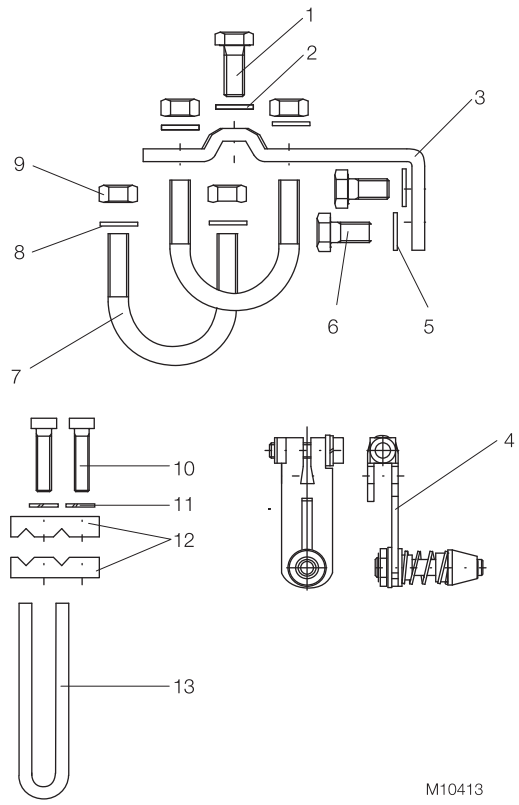


Fig. 5

1 Screw | 2 Shim | 3 Mount bracket | 4 Lever with follower pin (for stroke adjustment 10 ... 35 mm (0.39 ... 1.38 inch) or 20 ... 100 mm (0.79 ... 3.94 inch)) | 5 Shims | 6 Screws | 7 U-bolts | 8 Shims | 9 Nuts | 10 Screws | 11 Spring washers | 12 Clamp plates | 13 Follower guide

Attaching follower guide to actuator

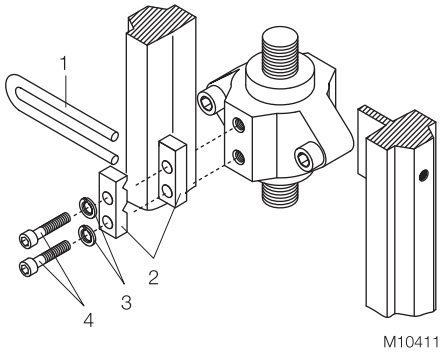


Fig. 6

1. Tighten the screws so that they are hand-tight
2. Attach the follower guide (1) and clamp plates (2) with screws (4) and spring washers (3) to the actuator stem

Mounting lever and bracket on positioner

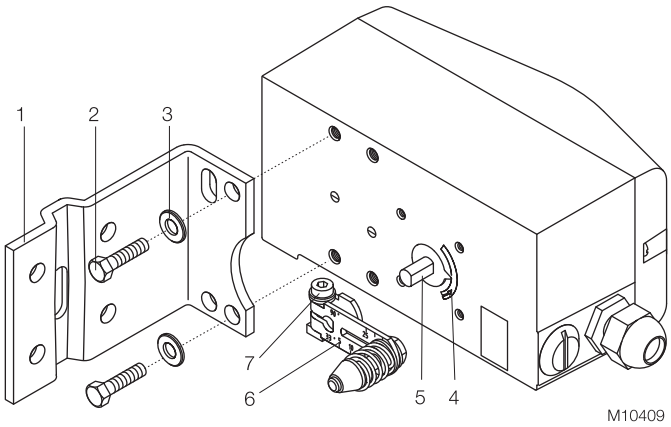


Fig. 7

1. Attach the lever (6) to the feedback shaft (5) of the positioner (can only be mounted in one direction due to the cut shape of the feedback shaft).
2. Using the arrow marks (4), check whether the lever moves within the working range (between the arrows).
3. Tighten the screw (7) on the lever so that it is hand-tight.
4. Hold the prepared positioner (with the mount bracket (1) still loose) on the actuator so that the follower pin for the lever enters the follower guide to determine which holes on the positioner must be used for the mount bracket.
5. Secure the mount bracket (1) with screws (2) and shims (3) using the relevant holes on the positioner housing. Tighten the screws as evenly as possible to ensure subsequent linearity. Align the mount bracket in the oblong hole to ensure that the working range is symmetrical (lever moves between the arrows (4).

Mounting on cast iron yoke

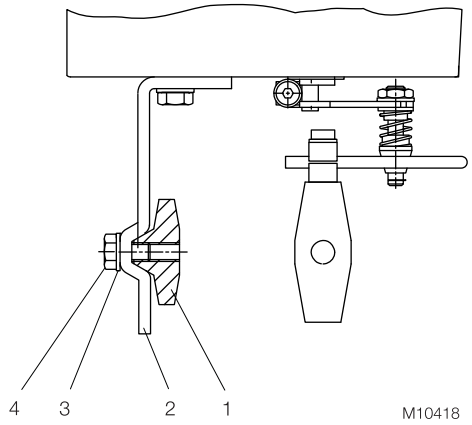


Fig. 8

1. Attach the mount bracket (2) with screw (4) and shim (3) to the cast iron yoke (1).

or

Mounting on columnar yoke

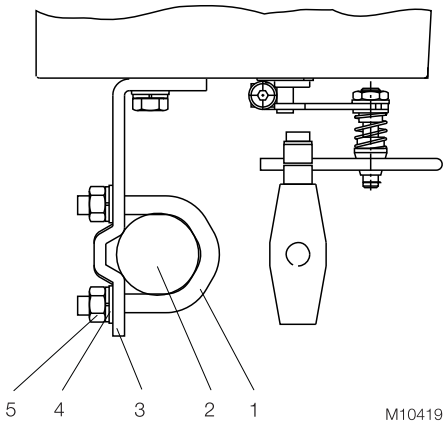


Fig. 9

1. Hold the mount bracket (3) in the appropriate position on the columnar yoke (2).
2. Insert the U-bolts (1) from the inside of the columnar yoke (2) through the holes of the mount bracket.
3. Attach the shims (4) and nuts (5).
4. Tighten the nuts so that they are hand-tight.

IMPORTANT (NOTE)
Adjust the height of the positioner on the cast iron yoke or columnar yoke until the lever is horizontal (based on a visual check) at half stroke of the valve.

Linkage for positioner

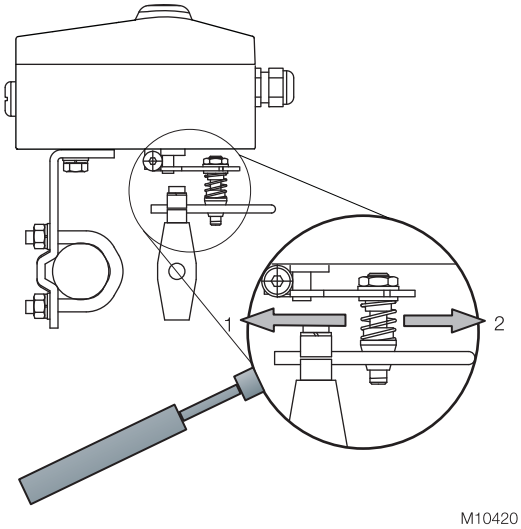


Fig. 10
1 Increasing linkage | 2 Reducing linkage

The scale on the lever indicates the link points for the various stroke ranges of the valve.
Move the bolt with the follower pin in the oblong hole of the lever to adjust the stroke range of the valve to the working range for the position sensor.
Moving the link point inwards increases the rotation angle of the sensor. Moving the link point outwards reduces the rotation angle of the sensor.
Adjust the actuator stroke to make use of as large an angle of rotation as possible (symmetrical around the center position) on the position sensor.

Recommended range for linear actuators: -30 … 30°
Minimum angle: 25°

IMPORTANT (NOTE)
After mounting, check whether the positioner is operating within the sensor range.

Integral mounting on control valves

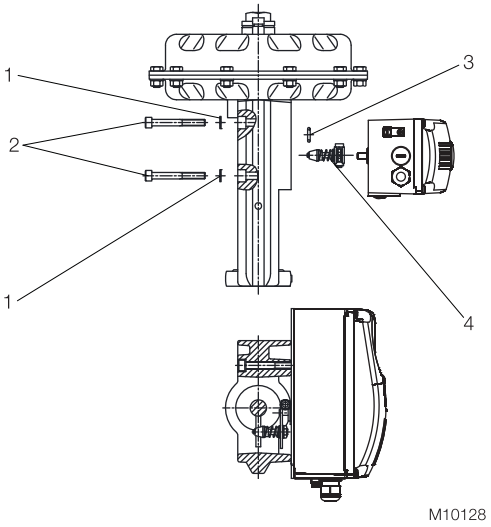


Fig. 11
1 Shims | 2 Screws | 3 O-ring | 4 Lever

Integral mounting on control valves using adapter plate

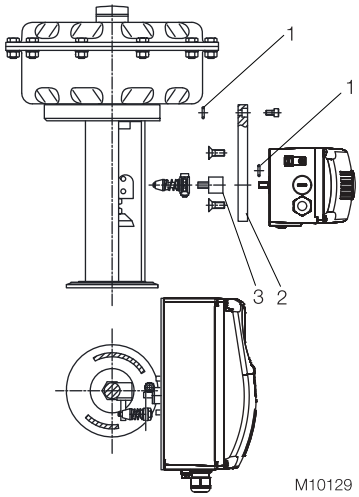


Fig. 12

1 O-ring | 2 Adapter plate | 3 Adapter

4.2.3 Mounting on part-turn actuators

For mounting on part-turn actuators in accordance with VDI / VDE 3845, the following mounting kit is available:

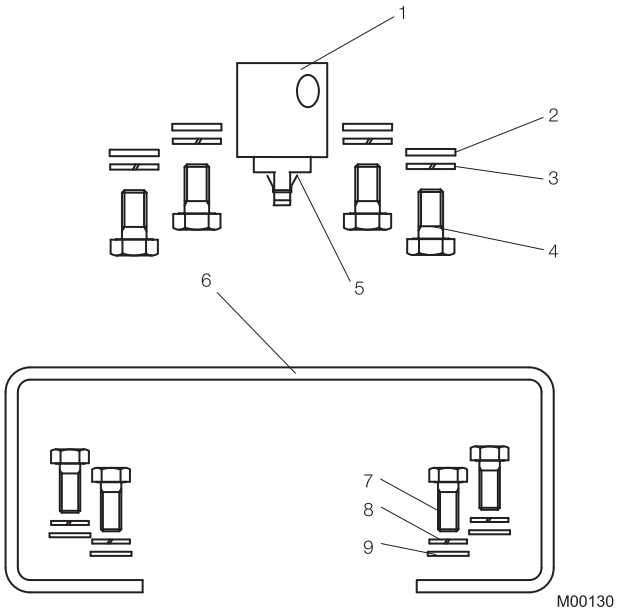


Fig. 13

— Adapter (1) with spring (5)
— Four screws M6 (4), four spring washers (3), and four shims (2) for attaching the mounting bracket (6) to the positioner
— Four screws M5 (7), four spring washers (8), and four shims (9) for attaching the mounting bracket to the actuator

Required tools:
— Wrench, size 8 / 10
— Allen key, size 3

Mounting the adapter on the positioner

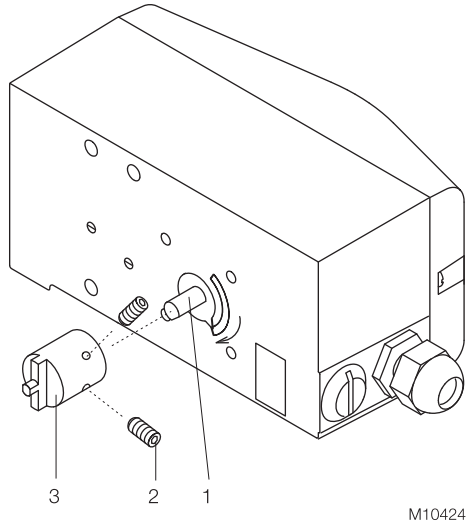


Fig. 14

1. Determine the mounting position (parallel to actuator or at 90° angle).
2. Determine the direction of rotation of the actuator (clockwise or counter-clockwise).
3. Move the part-turn actuator into the home position.
4. Pre-adjust feedback shaft.
   To ensure the positioner will operate within the working range (see Fig. 3), the mounting position as well as the home position and direction of rotation of the actuator must be taken into account when determining the adapter position on the feedback shaft (1). For this purpose, the feedback shaft can be adjusted manually so that the adapter (3) can be attached in the correct position.
5. Attach the adapter to the feedback shaft in the correct position and fasten with set screws (2). One of the set screws must be locked in place on the flat side of the feedback shaft.

Screwing mounting bracket on to positioner

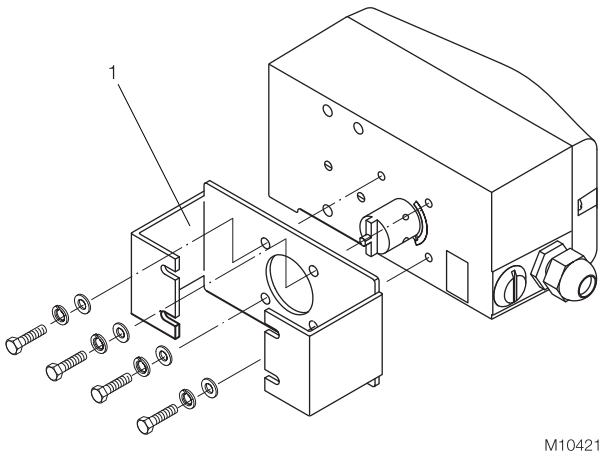


Fig. 15
1 Mounting bracket

Screwing positioner on to actuator

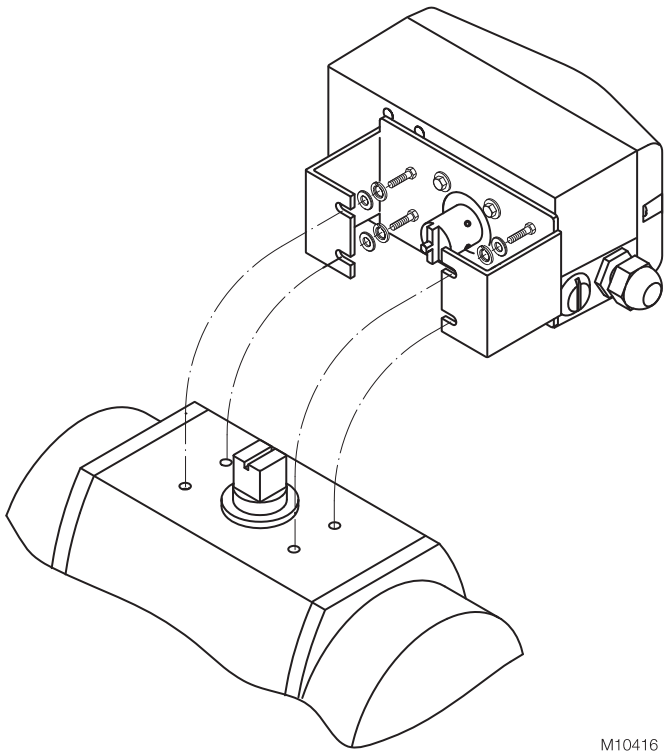


Fig. 16

IMPORTANT (NOTE)
After mounting, check whether the working range for the actuator matches the sensor range for the positioner.

5 Electrical connections

1. Strip the wire by approx. 6 mm (0.24 inch).
2. To connect the signal lines, the emergency shutdown module, and the proximity switches or microswitches, insert the wire ends from the left into the respective screw terminals and tighten the screws so that they are hand-tight (access from above). To connect a plug-in module, insert the wire ends from above into the appropriate screw terminals and tighten the screws so that they are hand-tight (access from the side).

5.1 Connection diagram

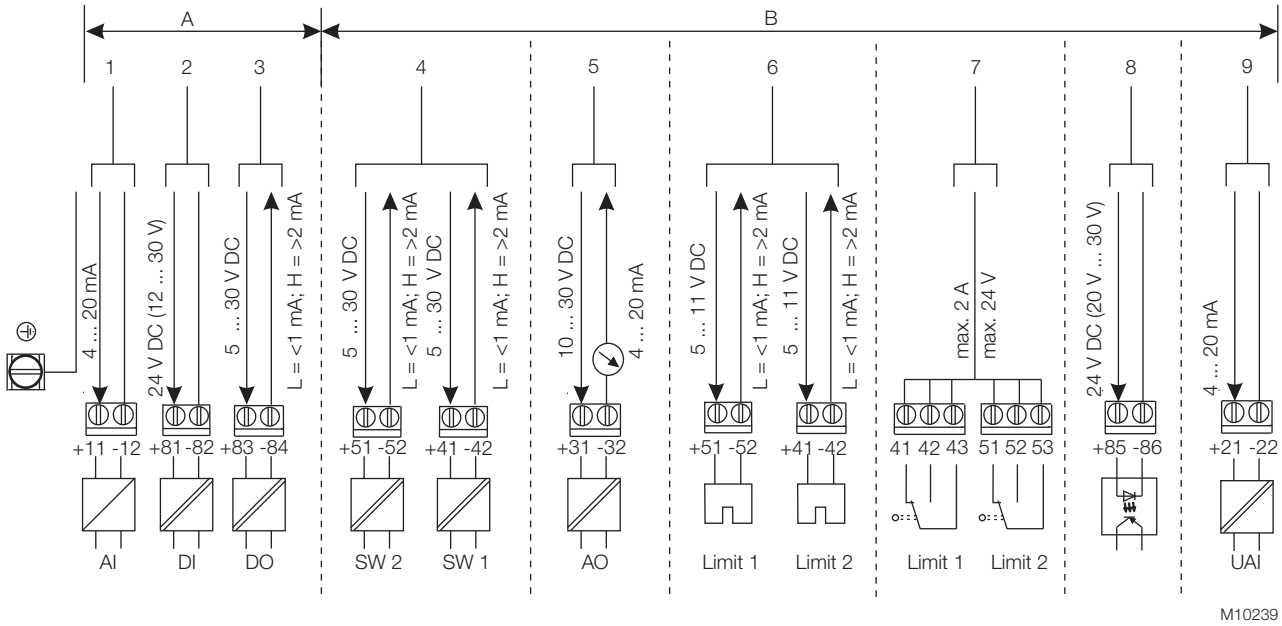


Fig. 17

A Basic device | B Options
1 Analog input | 2 Digital input | 3 Digital output | 4 Binary feedback | 5 Analog feedback | 6 Proximity switches | 7 Microswitch | 8 Emergency shutdown module | 9 Universal input

IMPORTANT (NOTE)
Keep cable shields as short as possible and connect on both sides.

5.2 Cable entry

IMPORTANT (NOTE)
The cable terminals are delivered closed and must be unscrewed before inserting the cable.

For the cable entry in the housing, there are two tap holes 1/2 - 14 NPT or M20 x 1.5 on the left-hand side of the housing. One of these holes has a cable gland, the other a pipe plug.

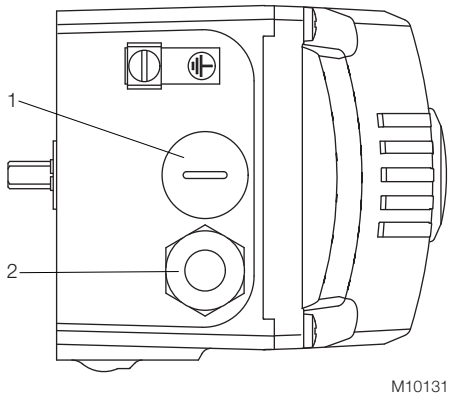


Fig. 18
1 Pipe plug | 2 Cable gland

5.3 Installing the option modules

IMPORTANT (NOTE)
The supply voltage must be switched off before the option modules are installed.

1. Loosen the screws for the housing cover and remove it.
2. Position the option module so that the plug points to the right.
3. Using a small amount of pressure, guide the option module into the slot from the side and press it down firmly.
4. Secure the option module in the housing by tightening the screw so that it is hand-tight.
5. Attach the housing cover and screw it on to the housing. Tighten the screws so that they are hand-tight.
6. If you are using the emergency shutdown module, the rotary switch on the main printed circuit board must be rotated into position 1 using a suitable flat-bladed screwdriver.
7. Attach the housing cover and screw it on to the housing. Tighten the screws so that they are hand-tight.

IMPORTANT (NOTE)
A maximum of two option modules may be used at the same time. The module types must be different.

IMPORTANT (NOTE)
If you are using the emergency shutdown module, the module must be supplied with 24 V DC at terminals +41 / -42. Otherwise, the positioner will not be able to function pneumatically (device in pneumatic safety position).

IMPORTANT (NOTE)
Perform a functional check of the emergency shutdown module (option) at least every 2 years. For this purpose, the positioner must move the valve into the safety position with the 24 V DC signal (terminal +85 / -86) interrupted.

5.3.1 Installing the mechanical position indicator

1. Loosen the screws for the housing cover and remove it.
2. Attach the extension shaft to the feedback shaft and secure it using the screw provided.
3. Attach the round position indicator to the extension shaft and rotate it into the desired position.
4. Attach the new housing cover (with round viewing window) and screw it on to the housing. Tighten the screws so that they are hand-tight.

5.3.2 Installing the mechanical position feedback

1. Loosen the screws for the housing cover and remove it.
2. If one has been installed, remove the optical position indicator and unscrew the extension shaft.
3. Move the printed circuit board for position feedback to the right underneath the two plastic clips and secure it using the screw provided.
4. If applicable, install the optical position indicator.
5. Attach the housing cover and screw it on to the housing. Tighten the screws so that they are hand-tight.

5.3.3 Installing the pressure option

CAUTION – Minor injuries!
Risk of injuries due to flying components as well as significant noise emissions.
Prior to disassembly, all connected compressed air lines must be depressurized.

IMPORTANT (NOTE)
The supply voltage must be switched off before the pressure option is installed.

IMPORTANT (NOTE)
The bond wires for the pressure option must not be touched. Doing this will cause damage to the option module.

IMPORTANT (NOTE)
Before using the device, an IEC-compliant high-voltage test must be performed.

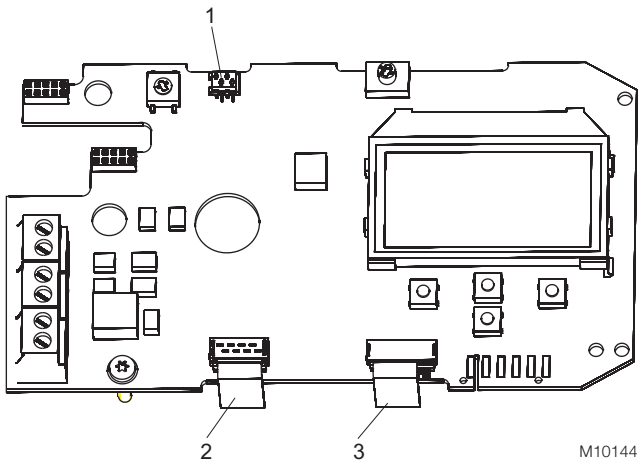


Fig. 19: Printed circuit board
1 I/P converter pneumatics | 2 Position sensor | 3 Pressure option

1. Loosen the screws for the housing cover and remove it.
2. Loosen all cable connections on the screw terminals.
3. If present, unscrew the option modules and remove them from the side.
4. If present, remove the mechanical position indicator and unscrew the extension shaft (as well as the one for the mechanical limit signal generator).
5. Remove the screws for the plastic cover and remove the cover.
6. Remove both plug connectors from the printed circuit board.
7. Unscrew the fixing screws for the printed circuit board and carefully remove the printed circuit board.
8. Unscrew the screws on the upper side of the pneumatics and remove the cover plate.
9. Carefully attach the pressure option to the pneumatics and screw it in place so that the screws are hand-tight.
10. Install the printed circuit board.
11. Attach both plug connectors (1, 2) to the printed circuit board (see Fig. 19).
12. Attach the plug connectors for the pressure option (3) to the printed circuit board (see Fig. 19).
13. Attach the plastic cap.
14. If necessary, install option modules and set the mechanical feedback.
15. Attach the housing cover and screw it on to the housing. Tighten the screws so that they are hand-tight.

5.4 Setting the option modules

5.4.1 Setting the mechanical position indicator

1. Loosen the screws for the housing cover and remove it.
2. Rotate the position indicator on the feedback shaft to the desired position.
3. Attach the housing cover and screw it on to the housing. Tighten the screws so that they are hand-tight.
4. Attach the symbol labels to mark the minimum and maximum valve positions on the housing cover.

IMPORTANT (NOTE)
The labels are located on the inside of the cover.

5.4.2 Setting the mechanical binary feedback with proximity switches

1. Loosen the screws for the housing cover and remove it.

CAUTION – Risk of injury!
The device includes slot sensors with sharp edges. Only adjust slot sensors using a screwdriver.

2. Set the upper and lower switching points for binary feedback as follows:
   - Select "Manual Adjustment" mode and move the valve by hand into the lower switching position.
   - Use a screwdriver to adjust the slot sensor for proximity switch 1 (lower contact) on the feedback shaft until it closes the contact (i.e., until shortly before entering the proximity switch). The slot sensor enters proximity switch 1 when the feedback shaft is rotated clockwise (as viewed from the front).
   - Move the valve by hand into the upper switching position.
   - Use a screwdriver to adjust the slot sensor for proximity switch 2 (upper contact) on the feedback shaft until it closes the contact (i.e., until shortly before entering the proximity switch). The slot sensor enters proximity switch 2 when the feedback shaft is rotated counter-clockwise (as viewed from the front).
3. Attach the housing cover and screw it on to the housing.
4. Tighten the screws so that they are hand-tight.

5.4.3 Setting the mechanical binary feedback with microswitches for 24 V

1. Loosen the screws for the housing cover and remove it.
2. Select "Manual Adjustment" operating mode and move the valve by hand into the desired switching position for contact 1.
3. Set maximum contact (1, lower washer); fasten the upper washer with the special adjustment retainers and rotate the lower washer manually.
4. Select "Manual Adjustment" operating mode and move the valve by hand into the desired switching position for contact 2.
5. Set minimum contact (2, upper washer); fasten the lower washer with the special adjustment retainers and rotate the upper washer manually.
6. Connect the microswitch.
7. Attach the housing cover and screw it on to the housing.
8. Tighten the screws so that they are hand-tight.

6 Pneumatic connection

IMPORTANT (NOTE)
The positioner must only be supplied with instrument air that is free of oil, water, and dust (in the gas exhaust with dried natural gas).
The purity and oil content must meet the requirements of Class 3 according to DIN/ISO 8573-1.

IMPORTANT (NOTE)
On double-acting drives with spring-return mechanism, a chamber pressure that significantly exceeds the supply pressure value can be generated during operation by the springs in the chamber opposite the springs.

NOTICE – Potential damage to parts!
Contamination on the air pipe and positioner can damage components.
Dust, splinters, and any other particles of dirt must be blown off the pipe before it is connected.

All pneumatic piping connections are located on the right-hand side of the positioner. G1/4 or 1/4 18 NPT tap holes are provided for the pneumatic connections. The positioner is labeled according to the tap holes available.
We recommend that you use a line with dimensions of 12 x 1.75 mm. The level of supply air pressure required to apply the actuating force must be adjusted in line with the output pressure in the actuator.
The working range for the positioner is between 1.4 ... 10 bar (20 ... 145 psi).

Connect the connections according to their labeling:

Designation	Pipe connection
SUP / ZUL IN	Air supply, pressure 1.4 ... 10 bar (20 ... 145 psi)
Y1 / OUT1	Actuating pressure for actuator
Y2 / OUT2	Actuating pressure for actuator (2nd connection with double-acting actuator)

NOTICE – Potential damage to parts!
Pressure above 10 bar (145 psi) can damage the positioner or actuator.
Provisions must be made (e. g., using a pressure regulator) to ensure that the pressure does not rise above 10 bar (145 psi), even in the event of a fault.

IMPORTANT (NOTE)
On double-acting drives with spring-return mechanism, a stop valve must be fitted in the supply line. Otherwise, the Auto Adjust function is aborted and the valve cannot be regulated.

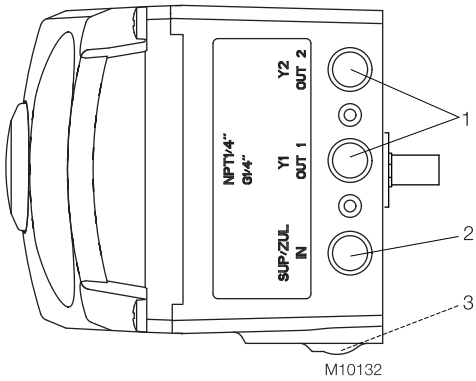


Fig. 20: Pneumatic connections

1 Pneumatic outputs | 2 Supply air | 3 Filter screw (on underside of housing)

7 Commissioning

During commissioning, the mechanical mounting on the linear and part-turn actuators is checked. For this purpose, the actuator is first moved into the end positions and Autoadjust is then carried out.

7.1 Checks prior to commissioning

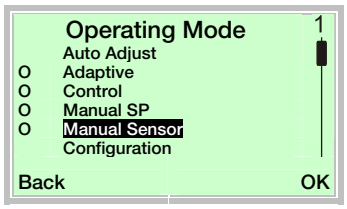
Air pressure in the compressed air connecting line:
1.4 … 10 bar (20 … 145 psi)

Current input active:
4 … 20 mA

7.2 Checking mechanical mounting

7.2.1 Moving to end positions (Autoadjust already performed)

1. Use to switch to the operating modes menu.

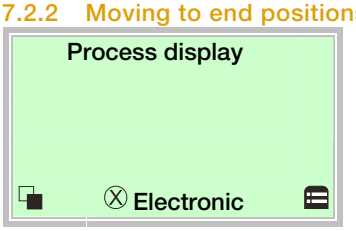


2. Use or to select the "Manual Sensor" operating mode.

3. Use and to move to the relevant end position.

Check the end positions. The angle of rotation is displayed in degrees.
Recommended range:
— between -30 … 30° for linear actuators
— between -45 … 45° for part-turn actuators

7.2.2 Moving to end positions (with new device)



1. Use and to move to the relevant end position.

Check the end positions. The angle of rotation is displayed in degrees.
Recommended range:
— between -30 … 30° for linear actuators
— between -45 … 45° for part-turn actuators

Autoadjust must then be performed. Please refer to the 8.2.3 "Start Auto Adjust function chapter for a description of how Autoadjust is performed.

8 Configuration, parameterization

8.1 Operation

The LCD display features operating buttons. These enable you to control the device with the housing cover open.

8.1.1 Menu navigation

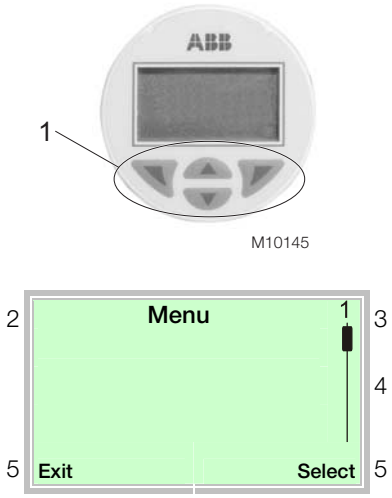


Fig. 21: LCD display

1 Operating buttons for menu navigation | 2 Menu name display | 3 Menu number display | 4 Marker for indicating the relative position within the menu | 5 Display showing the current functions of the and operating buttons

You can use the or operating buttons to browse through the menu or select a number or character within a parameter value.
Different functions can be assigned to the and operating buttons. The function that is currently assigned to them (5) is shown on the LCD display.

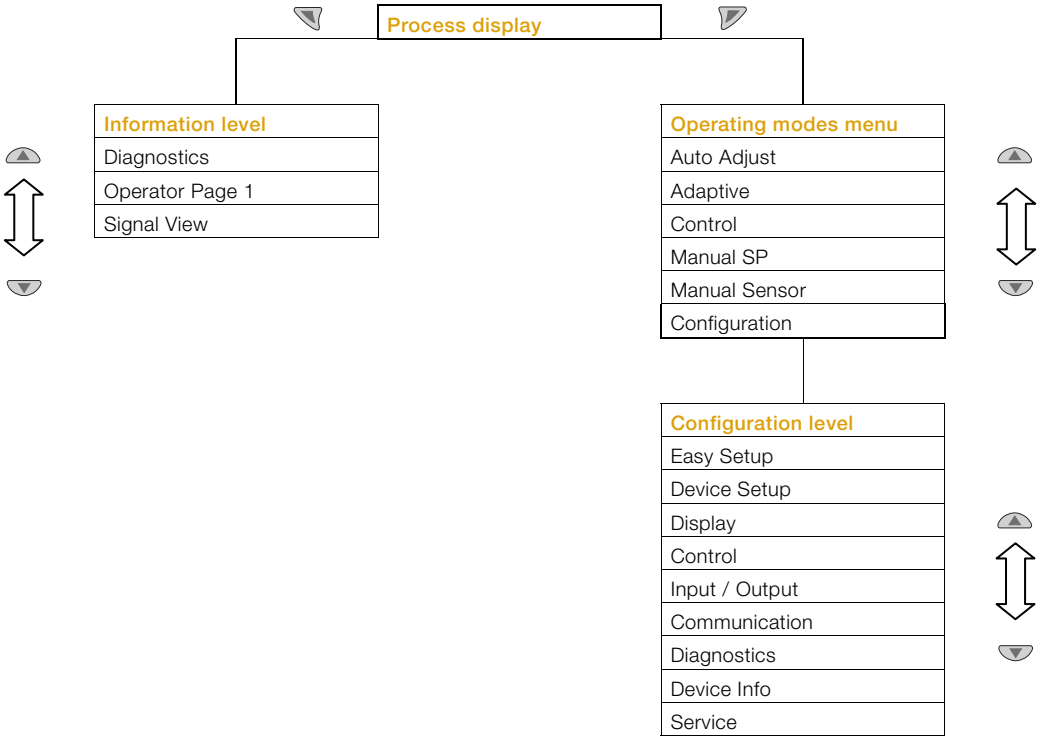
Control button functions

	Meaning
Exit	Exit menu
Back	Go back one submenu
Abort	Cancel a parameter entry
Next	Select the next position for entering numerical and alphanumeric values

	Meaning
Select	Select submenu / parameter
Edit	Edit parameter
OK	Save parameter entered

8.2 Menu levels

There are two levels under the process display.



Process display	The process display shows the current process values.
Information level	The information level contains the parameters and information that are relevant for the operator. The device configuration cannot be changed on this level.
Operating modes menu	In the operating modes menu, the Autoadjust function can be started for commissioning purposes. You can also change the operating modes and switch to the configuration level.
Configuration level	The configuration-, parameterization instruction contains all the parameters required for device commissioning and configuration. The device configuration can be changed on this level.

NOTICE – Property damage!

During external configuration via a PC, the positioner no longer responds to the setpoint current. This may lead to process failures. Prior to external configuration, always move the actuator to the safety position and activate manual adjustment.

IMPORTANT (NOTE)

For a detailed description of the individual parameters and menus on the configuration level, please refer to the 8.3 "Overview of parameters on the configuration level" and 8.4 "Parameter descriptions" chapters.

8.2.1 Process display

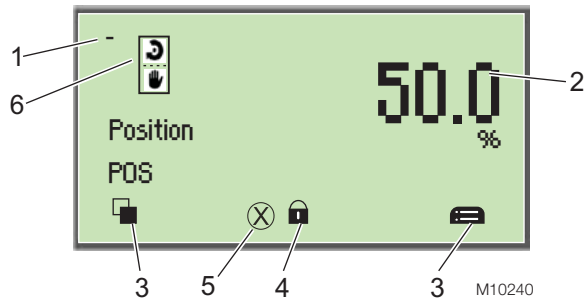


Fig. 22: Process display (example)

1 Measuring point identifier | 2 Display showing current process values | 3 Symbol indicating button function | 4 Symbol indicating "Parameterization protected" 5 Diagnostic message | 6 Operating mode symbol

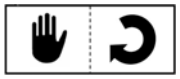
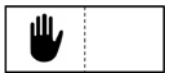
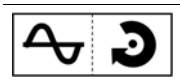
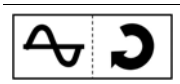
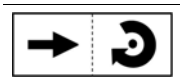
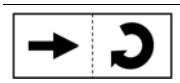
The process display appears on the LCD display when the device is switched on. It shows information about the device and current process values.
The way in which the current process values (2) are shown can be adjusted on the configuration level.

Symbol description

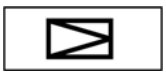
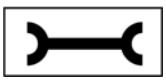
Symbol	Description
	Call up information level. When Autoscroll mode is enabled, a ↻ symbol appears here and the operator pages are automatically displayed one after the other.
	Call up configuration level.
	The device is protected against changes to the parameter settings.

Descriptions of operating modes

Symbol	Operating mode
	Adaptive control active When the PositionMaster EDP300 positioner is operated in "Adaptive Mode", the control parameters are automatically optimized to the operating conditions in small increments. This is particularly useful if valves and fittings could not be operated with reference conditions while the Autoadjust function was in progress. The self-optimization process in "Adaptive Mode" is subject to several factors, meaning that incorrect adjustments could be made over an extended period. It is recommended that this operating mode is only activated over several hours and that the "Fixed control" operating mode is selected following this.
	Fixed control In contrast to the "Adaptive control" operating mode, the control parameters are not automatically adjusted.
	Manual setpoint, adaptive control The valve is adjusted manually within the stroke range using the ▲ or ▼ direction buttons. 1. Press and hold the relevant operating button for the desired direction. 2. Additionally, press ◤ if the device is to be switched to high-speed mode.
	CAUTION – Risk of crushing! Configured stroke limit positions and stroke times are not effective in manual mode. When the actuator moves, there is a risk of crushing. You must make sure that no-one is present within the actuator's working range.

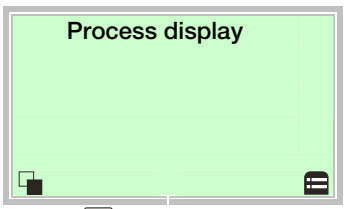
Symbol	Operating mode
	Manual setpoint, fixed control The valve is adjusted manually within the stroke range using the ▲ or ▼ direction buttons. 1. Press and hold the relevant operating button for the desired direction. 2. Additionally, press ◤ if the device is to be switched to high-speed mode.  **CAUTION – Risk of crushing!** Configured stroke limit positions and stroke times are not effective in manual mode. When the actuator moves, there is a risk of crushing. You must make sure that no-one is present within the actuator's working range.
	Moving the actuator manually The valve is adjusted manually within the valve range using the ▲ or ▼ direction buttons. The position indicator shows the position in ° for the purpose of checking the mounting conditions. 1. Press and hold the relevant operating button for the desired direction. 2. Additionally, press ◤ if the device is to be switched to high-speed mode.  **CAUTION – Risk of crushing!** If air escapes due to a leakage, the position will not be readjusted. Configured stroke limit positions and stroke times are not effective in manual mode. When the actuator moves, there is a risk of crushing. You must make sure that no-one is present within the actuator's working range.
	Setpoint via HART, adaptive control
	Setpoint via HART, fixed control
	Activated binary input, adaptive control
	Activated binary input, fixed control

Descriptions of message symbols

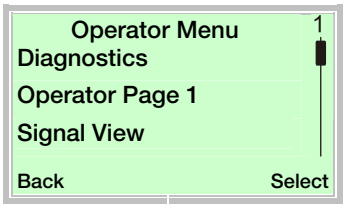
Symbol	Message symbol
	Universal input activated
	Diagnostic message pending
	Error pending
	Maintenance message pending

8.2.2 Switching to the information level (Operator Menu)

On the information level, the operator menu can be used to display diagnostic information and choose which operator pages to display.



1. Use ◤ to switch to the information level.

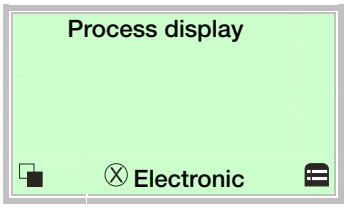


2. Use ▲ or ▼ to select a submenu.
3. Use ◤ to confirm your selection.

Menu	Description
... / Operator Menu	
Diagnostics	Displays the alarms and messages that are currently pending and which occurred in the past. The messages to be displayed can be selected on the configuration level, under "Diagnostics".
Operator Page 1	Switches to the process display.
Signal View	Selects the "Signal View" submenu (for service purposes only). The following signal values (plus units) can be displayed: Position Pos[%] Position Pos[°] Setpoint SP[%] Setpoint SP[mA] Control deviation DEV [%] Electronics temperature [°C, °F, °R, K] Supply pressure PIN [unit] Pressure output 1 PY1 [unit] Pressure output 2 PY2 [unit] Differential pressure DP [unit] Universal input value UIN [unit]

Error messages on the LCD display

In the event of an error, a message consisting of a symbol and text (e.g., electronics) appears at the bottom of the process display. The text displayed provides information about the area in which the error has occurred.



The error messages are divided into four groups in accordance with the NAMUR classification scheme. The group assignment can only be changed using a DTM or EDD.

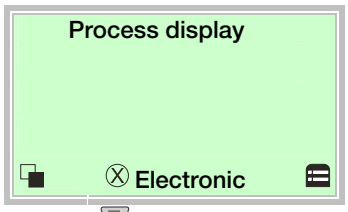
Symbol	Description
	Error / Failure
	Functional check
	Outside of specifications
	Maintenance required

The error messages are also divided into the following areas:

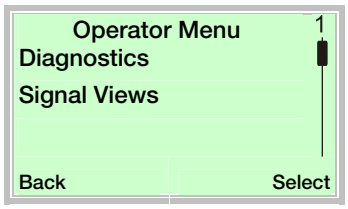
Area	Description
Actuator	Diagnostic messages affecting the valve or the pneumatic actuator
Operation	Diagnostic messages with a negative effect on the operation of the positioner
Process	Diagnostic messages relating to the process and displaying problems or states
Sensor	Alarms indicating problems affecting the reading of the valve position
Electronic	Displays errors in the device electronics
Configuration	Detects if the positioner configuration is missing or faulty

Calling up the error description

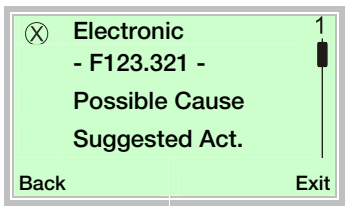
Additional details about the error that has occurred can be called up on the information level.



1. Use  to switch to the information level.



2. Use  or  to select the "Diagnostics" submenu.
3. Use  to confirm your selection.

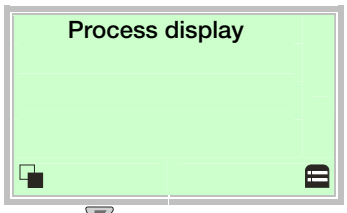


The first line shows the area in which the error has occurred.
The second line shows the unique error number.
The next lines show a brief description of the error and information on how to remedy it.

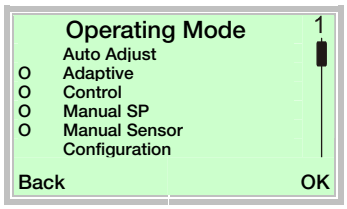
IMPORTANT (NOTE)
For a detailed description of the errors and information on how to remedy them, please refer to Chapter 10 "Error messages".

8.2.3 Start Auto Adjust function

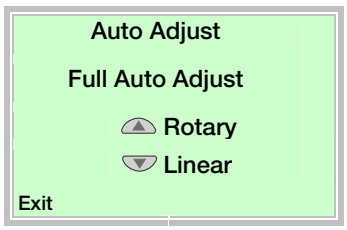
The Auto Adjust function can be configured and started in the "Operating Mode" menu.



1. Use to switch to the Operating Mode menu.



2. Use or to select the "Auto Adjust" operating mode.
3. Use to confirm your selection. Press and hold down the control button for at least 4 seconds (wait for the time to count down on the top left of the display).

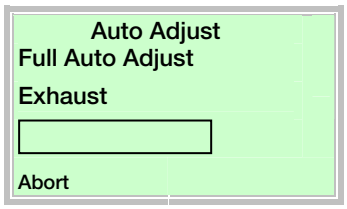


1. Use or to select the "Actuator type".

Select "Rotary" for part-turn (rotary) actuators, "Linear" for linear actuators.

IMPORTANT (NOTE)

"Auto Adjust Mode" can be set by default at configuration level under "Easy Setup -> Auto Adjust Mode".



The progress of the Auto Adjust function is shown in a bar graph. The function can be terminated with "Abort" if necessary. Once Auto Adjust has been completed successfully, "Auto Adjust Complete" is displayed. The device then switches to the process display automatically.

IMPORTANT (NOTE)

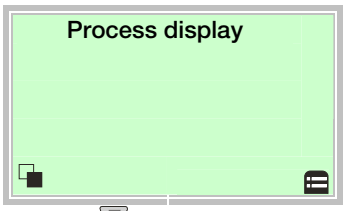
Auto Adjust does not always result in optimum control conditions.

When Auto Adjust is started via shortcut keys, the position of the valve is determined automatically.

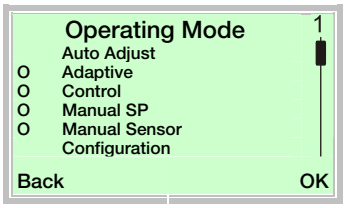
8.2.4 Switching the operating mode

The operating mode is displayed and changed in the operating modes menu.

Additionally, it is possible to switch to the configuration level from there.



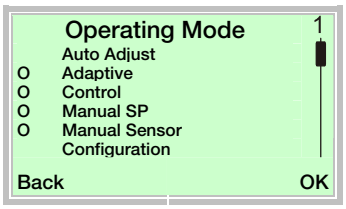
1. Use to switch to the operating modes menu.



2. Use or to select the required operating mode.
3. Use to confirm your selection.

8.2.5 Switching to the configuration level (parameterization)

The device parameters can be displayed and changed on the configuration level.

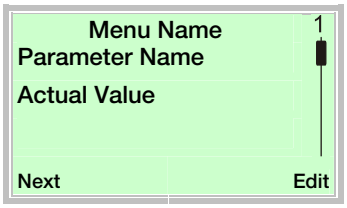


4. Use or to select the "Configuration" operating mode.
5. Use to confirm your selection.

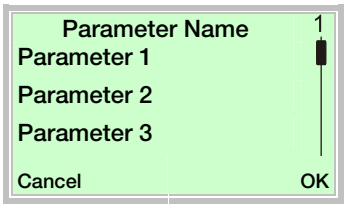
8.2.6 Selecting and changing parameters

Entry from table

When an entry is made from a table, a value is selected from a list of parameter values.



1. Select the parameters you want to set in the menu.
2. Use ◤ to call up the list of available parameter values. The parameter value that is currently set is highlighted.

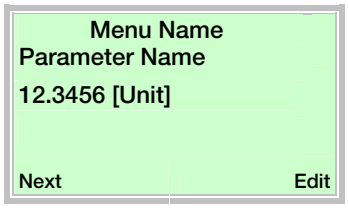


3. Use ▲ or ▼ to select the required value.
4. Use ◤ to confirm your selection.

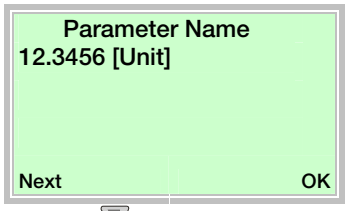
This concludes the procedure for selecting a parameter value.

Numerical entry

When a numerical entry is made, a value is set by entering the individual decimal positions.



1. Select the parameters you want to set in the menu.
2. Use ◤ to call up the parameter for editing. The position that is currently selected is highlighted.

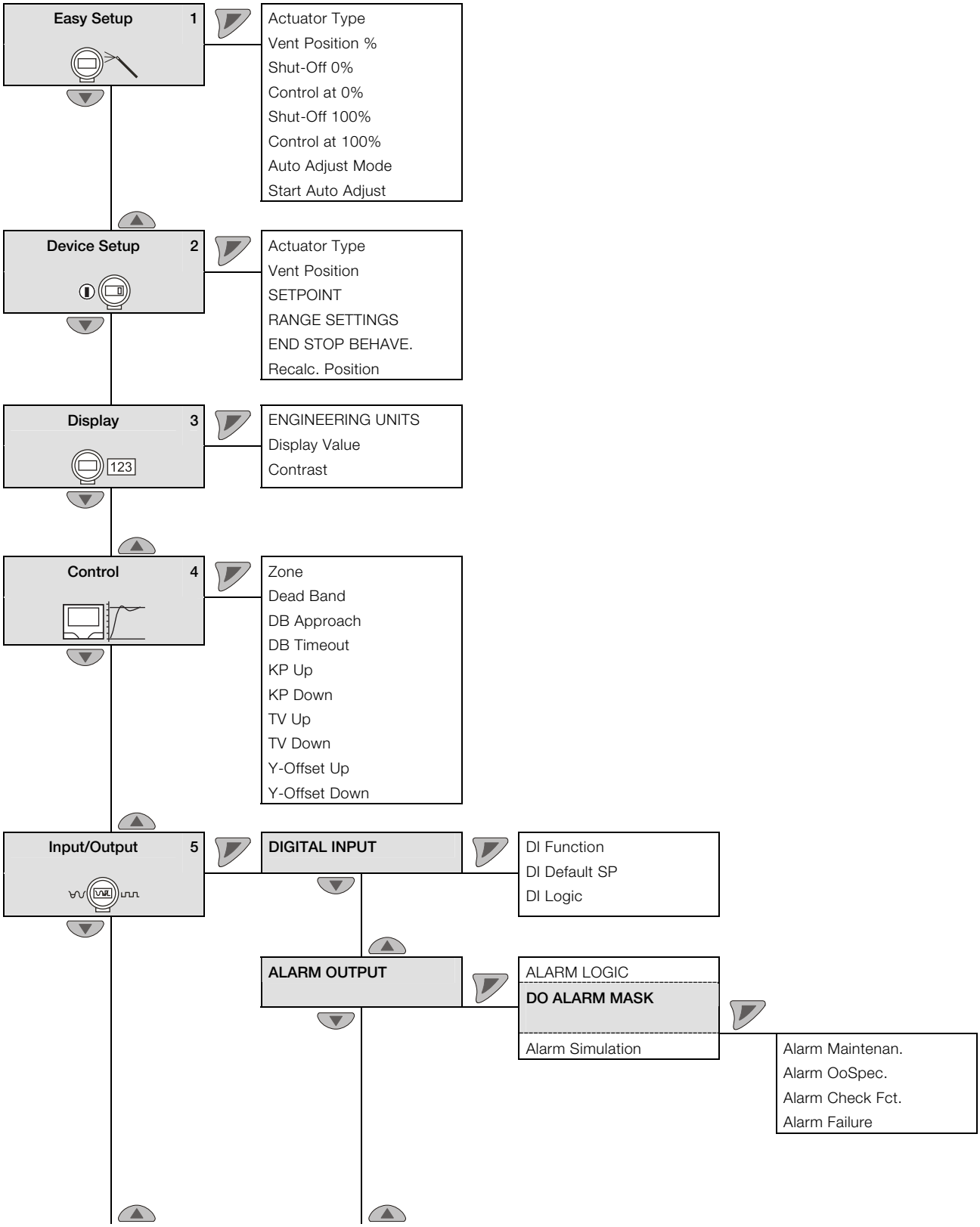


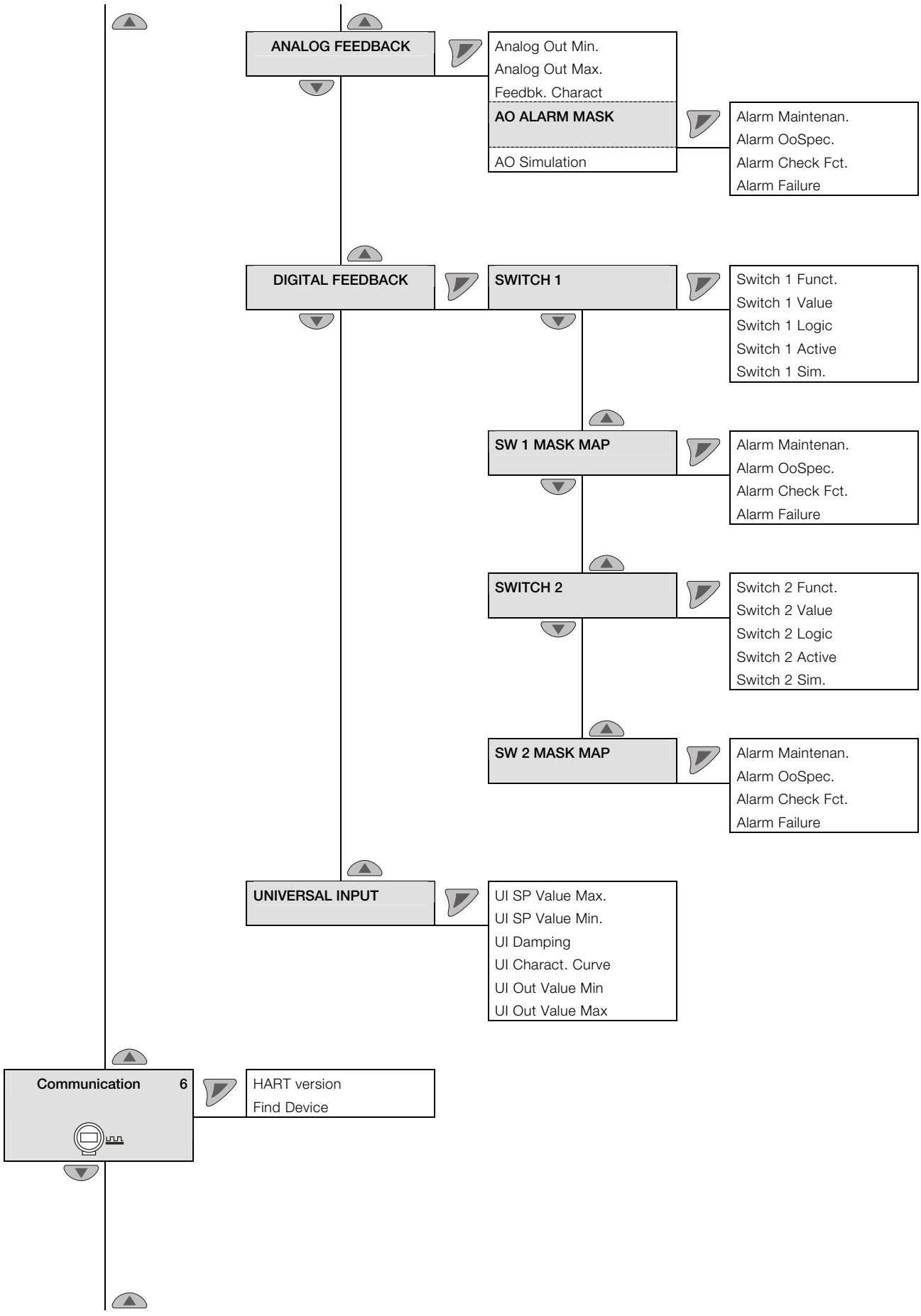
3. Use ◥ to select the decimal position to be changed.
4. Use ▲ or ▼ to set the required value.
5. Use ◥ to select the next decimal position.
6. If necessary, select and set other decimal positions using the same procedure as described in steps 3 and 4.
7. Use ◤ to confirm your settings.

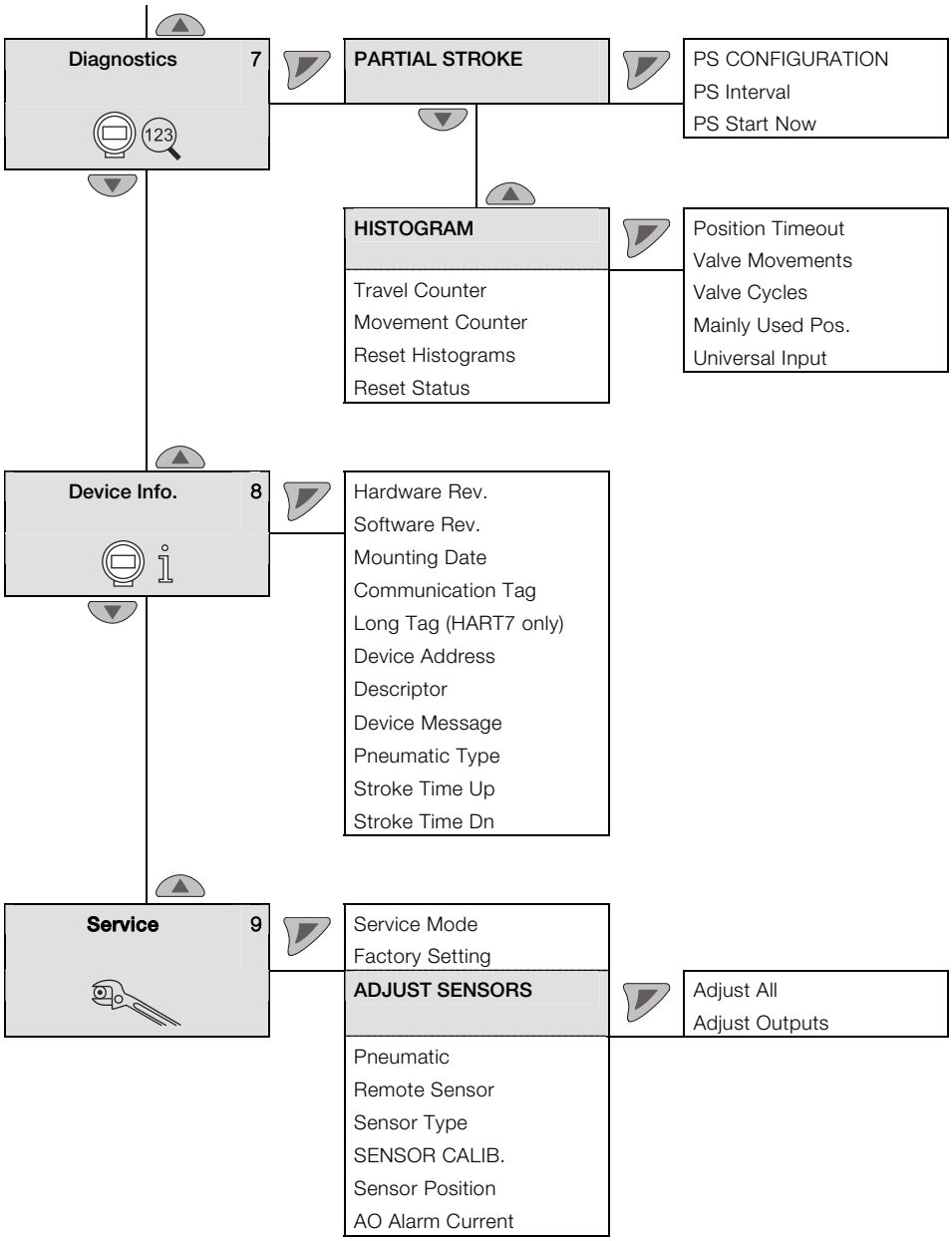
This concludes the procedure for changing a parameter value.

8.3 Overview of parameters on the configuration level

IMPORTANT (NOTE)
This overview of parameters shows all the menus and parameters available on the device. Depending on the version and configuration of the device, not all of the menus and parameters may be visible on it.




ANALOG FEEDBACK
Analog Out Min.
Analog Out Max.
Feedbk. Charact
AO ALARM MASK
AO Simulation
Alarm Maintenan.
Alarm OoSpec.
Alarm Check Fct.
Alarm Failure
DIGITAL FEEDBACK
SWITCH 1
Switch 1 Funct.
Switch 1 Value
Switch 1 Logic
Switch 1 Active
Switch 1 Sim.
SW 1 MASK MAP
Alarm Maintenan.
Alarm OoSpec.
Alarm Check Fct.
Alarm Failure
SWITCH 2
Switch 2 Funct.
Switch 2 Value
Switch 2 Logic
Switch 2 Active
Switch 2 Sim.
SW 2 MASK MAP
Alarm Maintenan.
Alarm OoSpec.
Alarm Check Fct.
Alarm Failure
UNIVERSAL INPUT
UI SP Value Max.
UI SP Value Min.
UI Damping
UI Charact. Curve
UI Out Value Min
UI Out Value Max
Communication 6
HART version
Find Device


Diagnostics 7
PARTIAL STROKE
PS CONFIGURATION
PS Interval
PS Start Now
HISTOGRAM
Position Timeout
Valve Movements
Valve Cycles
Mainly Used Pos.
Universal Input
Travel Counter
Movement Counter
Reset Histograms
Reset Status
Device Info. 8
Hardware Rev.
Software Rev.
Mounting Date
Communication Tag
Long Tag (HART7 only)
Device Address
Descriptor
Device Message
Pneumatic Type
Stroke Time Up
Stroke Time Dn
Service 9
Service Mode
Factory Setting
ADJUST SENSORS
Adjust All
Adjust Outputs
Pneumatic
Remote Sensor
Sensor Type
SENSOR CALIB.
Sensor Position
AO Alarm Current

8.4 Parameter descriptions

8.4.1 Menu: Easy Setup

... / Easy Setup

Menu / Parameter	Value range	Description
Actuator Type	Linear, Rotary	Use this parameter to configure the positioner for operation on a linear actuator (sensor range +/- 30°) or on a part-turn actuator (sensor range +/-45°). No mechanical modifications to the positioner are required. **IMPORTANT (NOTE)** After changing the actuator type, it is recommended that you run Auto Adjust to prevent linearity errors.
Vent Position	Position 0%, Position 100%	Use this parameter to specify which position is to be shown in the display when output 1 of the positioner is completely vented.
Shut-Off 0%	0.0 ... 45.0	The shut-off value is a percentage of the working range from which the 0 % position is approached. Once the specified position limit value is reached, the actuator moves directly into the 0 % end position.
Control at 0%	On, Off	Use this parameter to set the end position behavior. If the parameter is activated, the 0 % position is controlled. Otherwise, the actuator moves into the 0 % mechanical end position.
Shut-Off 100%	55.0 ... 100.0	The shut-off value is a percentage of the working range from which the 100 % position is approached. Once the specified position limit value is reached, the actuator moves directly into the 100 % end position.
Control at 100%	On, Off	Use this parameter to set the end position behavior. If the parameter is activated, the 100 % position is controlled. Otherwise, the actuator moves into the 100 % mechanical end position.
Auto Adjust Mode	Full, Controller, Valve Range, Zero, Locked	Use this parameter to define the mode or scope of the Auto Adjust function. Full – Full Auto Adjust Controller – Only determine control parameters Zero – Only determine the 0 % position Valve Range – Only determine limit stops Locked – Auto Adjust locked **IMPORTANT (NOTE)** On valves where slip-stick effect is significant, valve vibration can be reduced by increasing the value of the "Zone" parameter.
Start Auto Adjust	Start	The following values are determined during Auto Adjust: — Actuator's direction of action — Reset spring's direction of action — Actuator / valve travel — Stroke time for both directions — Control parameters — Offset for the I/P module — Actuator / valve stiction — Actuator / valve dynamic friction

8.4.2 Menu: Device Setup

... / Device Setup

Menu / Parameter	Value range	Description
Actuator Type	Linear, Rotary	Use this parameter to configure the configuration-, parameterization instruction for the positioner for operation on a linear actuator (sensor range +/-30°) or on a part-turn actuator (sensor range +/-45°). No mechanical modifications to the positioner are required. The linearization can be selected under the "Linear" parameter in accordance with the mounting conditions: **IMPORTANT (NOTE)** After changing the actuator type, it is recommended that you run Auto Adjust to prevent linearity errors.
Vent Position	Position 0%, Position 100%	Use this parameter to specify which position is to be shown in the display when output 1 of the positioner is completely vented.
SETPOINT	SP Range Min. SP Range Max. SP Filter SP Ramp Up SP Ramp Down SP Charact. Curve SP Direction	The parameters for the setpoint are set in this parameter group.
RANGE SETTINGS	VALVE RNG CALIB. Upper Working Rng Lower Working Rng	The valve end positions and the working range in which the valve is to be controlled are set in this parameter group. **IMPORTANT (NOTE)** If the working range is restricted, any switching points for digital position feedback which may have been set previously will shift in relation to the valve range.
END STOP BEHAVE	Tight Shut 0% Control at 0% Dead Angle 0% Tight Shut 100% Control at 100% Dead Angle 100%	The end position behavior is set in this parameter group.
Recalc. Position	Off On	Use this parameter to define whether the position indicator and analog position feedback display the valve position (Direct) or the valve flow (Recalculated).

... / ... / SETPOINT

Menu / Parameter	Value range	Description
SP Range Min.	4.0 ... 18.4 mA	The setpoint range is the input current range as a percentage of the working range for the valves and fittings (from 0 ... 100 %). Use parameter "0" to specify the **lower** limit of the setpoint range.  **IMPORTANT (NOTE)** The configured setpoint range must not be smaller than 20 % (3.2 mA).
SP Range Max.	5.6 ... 20.0 mA	The setpoint range is the input current range as a percentage of the working range for the valves and fittings (from 0 ... 100 %). Use parameter "100" to specify the **upper** limit of the setpoint range.  **IMPORTANT (NOTE)** The configured setpoint range must not be smaller than 20 % (3.2 mA).
SP Filter	0 ... 120 seconds	Use this parameter to set a damping value for the setpoint signal.
SP Ramp Up	OFF ... 0 ... 200 seconds	Here the stroke time for the actuator can be increased. A setpoint change is not directly transferred to the positioner; instead, the speed is reduced accordingly.  **CAUTION – Risk of crushing!** In manual mode, with an active safety position and after errors, the "Setpoint ramp" function is disabled. The actuator will therefore move without delay. Do not reach into the adjustment mechanism.
SP Ramp Down	OFF ... 0 ... 200 seconds	Here the stroke time for the actuator can be increased. A setpoint change is not directly transferred to the positioner; instead, the speed is reduced accordingly.  **CAUTION – Risk of crushing!** In manual mode, with an active safety position and after errors, the "Setpoint ramp" function is disabled. The actuator will therefore move without delay. Do not reach into the adjustment mechanism.

Menu / Parameter	Value range	Description
SP Charact. Curve	LINEAR linear 1:25 1:50 25:1 50:1 Custom	Use this parameter to select a function that adjusts the behavior of the positioner to the analog input signal in accordance with a predefined course. This linearizes the characteristic curves for the valves and fittings and improves the behavior of the overall control loop. In addition to five predefined characteristic curves, you can also select a user-configurable characteristic curve, which can only be generated and saved in the device via a PC with the appropriate configuration program (and not locally).  **IMPORTANT (NOTE)** If the "Setpoint characteristic curve" parameter is changed, any switching points for digital position feedback which may have been set previously will shift in relation to the valve range.
SP Direction	Direct Reverse	The action describes the relationship between the analog setpoint and pneumatic output 1. Direct: Rising, setpoint 0 ... 100 % -> output 0 ... 100 % Reverse: Decreasing: Setpoint 0 ... 100 % -> output 100 ... 0 %

... / ... / RANGE SETTINGS

Menu / Parameter	Value range	Description
VALVE RNG CALIB.		
Upper Valve Rng	0.0 ... 100.0 %	Normally, the valve range is determined automatically during Auto Adjust. A partial run of Auto Adjust that is limited to the control parameters or valves and fittings without end stops, however, requires manual adjustment of the valve range. **CAUTION – Risk of crushing!** Following manual adjustment of the end positions, it is essential that the parameter "Control at 100 %" is set to "On". Otherwise, the valves and fittings may be driven at full speed to an end position. Do not reach into the adjustment mechanism. **IMPORTANT (NOTE)** If the valve range is rotated manually following Auto Adjust (old min. = new max. -=> old max. = new min.), the device will stop responding to setpoint changes in the setpoint. A constant process value of 128 flashes on the display.
Lower Valve Rng	0.0 ... 100.0 %	Normally, the valve range is determined automatically during Auto Adjust. A partial run of Auto Adjust that is limited to the control parameters or valves and fittings without end stops, however, requires manual adjustment of the valve range. **CAUTION – Risk of crushing!** Following manual adjustment of the end positions, it is essential that the parameter "Control at 100 %" is set to "On". Otherwise, the valves and fittings may be driven at full speed to an end position. Do not reach into the adjustment mechanism. **IMPORTANT (NOTE)** If the valve range is rotated manually following Auto Adjust (old min. = new max. -=> old max. = new min.), the device will stop responding to setpoint changes in the setpoint. A constant process value of 128 flashes on the display.
Upper Working Rng	0.0 ... 100.0 %	The working range can be configured to be smaller than the maximum mechanical working range. The setpoint range always refers to the configured working range. Use this parameter to specify the **lower** limit of the working range. **CAUTION – Risk of crushing!** This function is only active in control mode. In the event of a power supply failure (electric or pneumatic), and in manual mode, the mechanical end positions are approached.
Lower Working Rng	0.0 ... 100.0 %	The working range can be configured to be smaller than the maximum mechanical working range. The setpoint range always refers to the configured working range. Use this parameter to specify the **upper** limit of the working range. **CAUTION – Risk of crushing!** This function is only active in control mode. In the event of a power supply failure (electric or pneumatic), and in manual mode, the mechanical end positions are approached.

END STOP BEHAV.

... / .../ END STOP BEHAV.

Menu / Parameter	Value range	Description
Tight Shut 0%	0 ... 45.0	The shut-off value is a percentage of the working range from which the 0 % position is approached. Once the specified position limit value is reached, the actuator moves directly into the 0 % end position.
Control at 0%	On, OFF	Use this parameter to set the end position behavior. If the parameter is activated, the 0 % position is controlled. Otherwise, the actuator moves into the 0 % mechanical end position.
Dead Angle 0%	0.0 ... 45.0 %	Use this parameter to cut off the unusable range of the valve flow characteristic curve from the point of view of control. The dead angle is a percentage of the working range to which the valve is moved if the input signal is 4.16 mA. **IMPORTANT (NOTE)** If the parameter is changed, any switching points for binary feedback which may have been set previously will shift in relation to the valve range.
Tight Shut 100%	55.0 ... 100	The shut-off value is a percentage of the working range from which the 100 % position is approached. Once the specified position limit value is reached, the actuator moves directly into the 100 % end position.
Control at 100%	On, OFF	Use this parameter to set the end position behavior. If the parameter is activated, the 100% position is controlled. Otherwise, the actuator moves into the 100% mechanical end position.
Dead Angle 100%	55.0 ... 100.0 %	Use this parameter to cut off the unusable range of the valve flow characteristic curve from the point of view of control. The dead angle is a percentage of the working range to which the valve is moved if the input signal is 19.84 mA. **IMPORTANT (NOTE)** If the parameter is changed, any switching points for binary feedback which may have been set previously will shift in relation to the valve range.

8.4.3 Menu: Display

.../ Display

Mask contents	Value range	Description
ENGINEERING UNITS	Temperature Pressure Universal Input	Use this parameter to select the units to be displayed. **Temperature:** °C – degrees Celsius °F – degrees Fahrenheit °R – degrees Rankine K - Kelvin **Pressure:** psi bar kPa Mpa **Universal Input:** The unit can only be entered in plain text using a DTM / EDD.
Display Value	Position % Position ° Setpoint % Setpoint mA Deviation % Temperature Univ. Inp. Press. Y1 Press. Y2 Diff. Press. Supply Press.	Use this parameter to select which value is to be shown on the process display. Position – Position in % Position ° - Position in degrees Setpoint % - Setpoint in % Setpoint mA – Setpoint in mA Deviation – Control deviation in % Elec.Temp. - Device temperature Univ. IN – Scaled value at universal input Press. Y1 – Pressure, output 1 Press. Y2 – Pressure, output 2 Diff. Press. – Differential pressure between the outputs Supply Press. - Supply air pressure
Contrast	0 … 100 %	Display contrast

8.4.4 Menu: Control

.../ Control

Mask contents	Value range	Description
Zone	1 ... 100 in steps of 1	This parameter specifies the point at which the control structure is switched over when the dead band is being approached. **IMPORTANT (NOTE)** On valves where slip-stick effect is significant, valve vibration can be reduced by increasing the value of the "Zone" parameter.
Dead Band	0.10 ... 10.00 % in steps of 0.01 %	The dead band defines a +/- range around the position setpoint. Once the position of the valves and fittings reaches this range, the positioner maintains this position.
DB Approach	Fast Medium Slow	This parameter specifies the speed at which the dead band is approached. In rare cases, overshooting can occur when the valve position is being compensated. This can be prevented by reducing the speed of the dead band approach. Slow Medium Fast
Dead Band Control Time		This parameter is used to set the overrun time for continued control after the dead band has been reached.
DB Timeout		Use this parameter to enter a monitoring time up to the point at which the dead band is reached. When the dead band is exceeded, the monitoring time is started. If the dead band around the new position setpoint is not reached again within the specified time, an alarm is triggered. Once the setpoint has been reached, the alarm is automatically reset. **IMPORTANT (NOTE)** With active shutoff there is no alarm message. Once the setpoint has been reached, the alarm is automatically reset. Value range: 0 ... 1000 s. **IMPORTANT (NOTE)** The monitoring stroke time is determined during Auto Adjust. Selecting a value of "0 s" deactivates this parameter.
Kp Up	1.0 ... 400.0	The KP value is the gain of the controller. The control speed and stability are influenced by the KP value. With higher KP values, the control speed increases. To compensate for existing dissymmetries in the controlled system, the KP value should be set separately for both positioning directions (up / down). For most actuators, satisfactory control behavior is achieved with a KP value between 2.0 ... 10.0. Use this parameter to adjust the KP value for the **up** positioning direction (towards 100 %). **IMPORTANT (NOTE)** The control precision is not affected by the KP value.

Mask contents	Value range	Description
Kp Down	1.0 ... 400.0	The KP value is the gain of the controller. The control speed and stability are influenced by the KP value. With higher KP values, the control speed increases. To compensate for existing dissymmetries in the controlled system, the KP value should be set separately for both positioning directions (up / down). For most actuators, satisfactory control behavior is achieved with a KP value between 2.0 ... 10.0. Use this parameter to adjust the KP value for the **down** positioning direction (towards 0 %). **IMPORTANT (NOTE)** The control precision is not affected by the KP value.
TV Up	10 ... 800 ms	The TV value is the derivative time of the controller. The control speed and stability are affected by the TV value in such a way that it counteracts the KP value dynamically. The control speed decreases as the TV value increases. To compensate for existing dissymmetries in the controlled system, the TV value should be configured separately for both positioning directions (up / down). Use this parameter to adjust the TV value for the **up** positioning direction (towards 100 %).
TV Down	10 ... 800 ms	The TV value is the derivative time of the controller. The control speed and stability are affected by the TV value in such a way that it counteracts the KP value dynamically. The control speed decreases as the TV value increases. To compensate for existing dissymmetries in the controlled system, the TV value should be configured separately for both positioning directions (up / down). Use this parameter to adjust the TV value for the **down** positioning direction (towards 0 %).

Mask contents	Value range	Description
Y-Offset Up	1 ... 100.0 %	The "offset for the setpoint signal" linearizes the behavior of the I/P module used and enables rapid compensation even in the case of small control deviations. The value is limited at the lower end by a minimum value (lower measuring range limit). The offset significantly affects the control speed for control deviations of less than 5 %. To compensate for existing dissymmetries in the controlled system, the offset should be configured separately for both positioning directions (up / down). For most actuators, satisfactory control behavior is achieved with offset values between 40 ... 80 %. If, in the event of setpoint changes, the control behavior demonstrates an overshoot of less than 2 %, both offset values should be decreased. Both offset values should be increased when the actuator stops outside the dead band. Use this parameter to adjust the Y offset for the **up** positioning direction (towards 100 %).
Y-Offset Down	1 ... 100.0 %	The "offset for the setpoint signal" linearizes the behavior of the I/P module used and enables rapid compensation even in the case of small control deviations. The value is limited at the lower end by a minimum value (neutral zone). The offset significantly affects the control speed for control deviations of less than 5 %. To compensate for existing dissymmetries in the controlled system, the offset should be configured separately for both positioning directions (up / down). For most actuators, satisfactory control behavior is achieved with offset values between 40 ... 80 %. If, in the event of setpoint changes, the control behavior demonstrates an overshoot of less than 2 %, both offset values should be decreased. Both offset values should be increased when the actuator stops outside the dead band. Use this parameter to adjust the Y offset for the **down** positioning direction (towards 0 %).

IMPORTANT (NOTE)
In the case of most actuators, all control parameters can be optimized by using Auto Adjust. The parameters should only be changed if Auto Adjust cannot be executed or does not result in satisfactory control behavior.

8.4.5 Menu: Input / Output

.../ Input / Output

Mask contents	Value range	Description
DIGITAL INPUT	DI Function DI Default SP DI Logic	Selection of functions or states that are executed or adopted if the "digital input" has been activated.
ALARM OUTPUT	ALARM LOGIC DO ALARM MASK Alarm Simulation	Use this parameter to configure the alarm output via which a general alarm can be issued. Depending on the activated Namur classification group, it is also possible for the general alarm to be issued as an alarm current.
ANALOG FEEDBACK	Analog Out Min. Analog Out Max. Feedb. Charact. AO ALARM MASK AO Simulation	The current valve position (or the "back-calculated valve flow characteristic", if this option is being used) is fed back as a current signal via analog position feedback. Depending on the activated Namur classification group, it is also possible for the general alarm to be issued as an alarm current.
DIGITAL FEEDBACK	SWITCH 1 SW 1 MASK MAP SWITCH 2 SW 2 MASK MAP	Binary feedback can be used to configure two limit switches which are able to report when a value is reached or exceeded, via a current signal. Additionally, diagnostics bits can be output via the second switch.
UNIVERSAL INPUT	UI SP Value Max. UI SP Value Min. UI Damping UI Charact. Curve UI Out Value Min. UI Out Value Max.	Use this menu item to configure and simulate the universal input.

Menu: DIGITAL INPUT

... / .../ DIGITAL INPUT

Mask contents	Value range	Description
DI Function	Off Hold Last SP Hold User SP Hold Last Pos. Press. Out1 Vent. Out2 Freeze Outputs Partial Stroke Test Service Required Safety Position Local Conf Lock Lock Panel Lock all	Off – No function Hold Last SP – Last setpoint is retained Hold User SP – Substitute value for setpoint (defined in "DI Default Setp.") Hold Last Pos. – Hold last position Press. Out1 – Vent output 1 Vent. Out2 – Vent output 2 Freeze Outputs – Close pneumatic outputs Partial Stroke Test – Start partial stroke test Service Required – Output diagnostics bit via binary feedback Safety Position – Approach safety position Local Conf Lock – Lock local configuration Lock Panel – Lock local operation Lock all – Lock all operation and setting options.
DI Default SP	0 … 100%	The position defined using this parameter is approached when the "digital input" function has been set to "Hold User SP" and the digital input has been activated.
DI Logic	Active High Active Low	Use this parameter to configure the contact logic for activating the digital input. **IMPORTANT (NOTE)** For the following parameters, the contact logic is always "active low" or "off": — Safety Position — Local Conf Lock — Lock Panel — Lock all

Menu: ALARM OUTPUT

... / .../ ALARM OUTPUT

Mask contents	Value range	Description
ALARM LOGIC	Active High Active Low	Use this parameter to define the contact logic for the alarm output. Active High -> I > 2.1 mA Active Low -> I < 1.2 mA
DO ALARM MASK	Alarm Maintenan. Alarm OoSpec. Alarm Check Fct. Alarm Failure	Use this parameter to select which general alarms are output as an alarm current, depending on the activated Namur classification group. Alarm Maintenan. – Maintenance required Alarm OoSpec. – Operation outside of specifications Alarm Check Fct. – Functional check required Alarm Failure - Failure
Alarm Simulation	Off Lo Hi	The presence of an alarm can be simulated here in order to output the alarm current.

Menu: ANALOG FEEDBACK

... / .../ ANALOG FEEDBACK

Mask contents	Value range	Description
Analog Out Min.	4.0 ... 18.4 mA	Use this parameter to specify the lower current range limit for the analog feedback. The current range corresponds to the configured stroke range. **IMPORTANT (NOTE)** The current range limits can be freely configured between 4 … 18.5 mA. However, the current range must not be smaller than 10 % (1.6 mA).
Analog Out Max.	5.6 ... 20.0 mA	Use this parameter to specify the upper current range limit for the analog feedback.The current range corresponds to the configured stroke range. **IMPORTANT (NOTE)** The current range limits can be freely configured between 4 … 20 mA. However, the current range must not be smaller than 10 % (1.6 mA).
Feedb. Charact	Direct Reverse	Use this parameter to specify the characteristic curve for the analog feedback. Direct (rising) = position 0 ... 100 % = signal 4 ... 20 mA Reverse (falling) = position 0 ... 100 % = signal 20 ... 4 mA
AO ALARM MASK	Alarm Maintenan. Alarm OoSpec. Alarm Check Fct. Alarm Failure	When a general alarm is issued, an alarm current can be sent via the analog position feedback. These alarm groups are defined in accordance with Namur NE107. A high alarm current ("High" i >21.5 mA), low alarm current ("Low" I < 3.6 mA), or "Off" can be set for each individual group.
AO Simulation	Off Low High Input Current HW Alarm Current	The analog position feedback function is simulated in this parameter group. Off – End simulation. Low - Alarm current I < 3.8 mA High - Alarm current I > 20.5 mA Input Current - The input current of the positioner is output. HW Alarm Current - The "AO Alarm Current" set in "Service Mode" is output.

Menu: DIGIT. FEEDBACK

... / .../ DIGIT. FEEDBACK

Mask contents	Value range	Description
Switch 1	Switch 1 Funct. Switch 1 Value Switch 1 Logic Switch 1 Activ.	The function of switch 1 is configured in this parameter group. Switch 1 Funct. – Switch 1 function Switch 1 Value – Switch 1 value Switch 1 Logic – Switch 1 logic Switch 1 Activ – Switch 1 activation.
SW 1 MASK MAP	Alarm Maintenan. Alarm OoSpec. Alarm Check Fct. Alarm Failure Switch 1 Sim.	The function of switch "1 MASK MAP" is configured in this parameter group. SW 1 Mask Map – Switch 1 diagnostics assignment Switch 1 Sim. – Switch 1 simulation
Switch 2	Switch 2 Funct. Switch 2 Value Switch 2 Logic Switch 2 Activ.	The function of switch 2 is configured in this parameter group. Switch 2 Funct. – Switch 2 function Switch 2 Value – Switch 2 value Switch 2 Logic – Switch 2 logic Switch 2 Activ – Switch 2 activation. SW 2 Mask Map – Switch 2 diagnostics assignment Switch 2 Sim. – Switch 2 simulation
SW 2 MASK MAP	Alarm Maintenan. Alarm OoSpec. Alarm Check Fct. Alarm Failure Switch 2 Sim.	The function of switch "2 MASK MAP" is configured in this parameter group. SW 2 Mask Map – Switch 2 diagnostics assignment Switch 2 Sim. – Switch 2 simulation

Menu: Digit. Feedback / Switch 1

... / .../ Digit. Feedback / Switch 1

Mask contents	Value range	Description
Switch 1 Funct.	Position Info Diagnostic state	Use this parameter to select whether the switch is to be used as a limit signal generator or for signaling diagnostics messages. Position Info – Evaluate position Diagnostic State – Evaluate diagnostic state
Switch 1 Value	0 … 100%	Use this parameter to configure the position value as a limit signal generator. It is taken into account when the "Switch 1 Funct." parameter is set to "Position Info".
Switch 1 Logic	Active High Active Low	Use this parameter to select the contact logic. Active High (active) = Output current I > 2.1 mA Active Low (active) = Output current I < 1.2 mA
Switch 1 Activ.	Fall Below Exceeding	Use this parameter to select the edge for activating the switch. Disabled Fall Below Exceeding

Menu: Digit. Feedback / SW 1 MASK MAP

... / .../ Digit. Feedback / SW 1 MASK MAP

Mask contents	Value range	Description
Alarm Maintenan.	Off On	When a general alarm is issued, an alarm current can be sent via the analog position feedback. These alarm groups are defined in accordance with Namur NE107. Each individual group can be activated. On Off Alarm Maintenance – Maintenance required Alarm OoSpec. – Operation outside of specifications Alarm Check Fct. – Functional check required Alarm Failure - Failure
Alarm OoSpec.	Off On	
Alarm Check Fct.	Off On	
Alarm Failure	Off On	
Switch 1 Sim.	Off On	Use this parameter to simulate the switch function. Off – Simulation deactivated

Menu: Digit. Feedback / SW 2 MASK MAP

... / .../ Digit. Feedback / SW 2 MASK MAP

Mask contents	Value range	Description
Alarm Maintenan.	Off On	When a general alarm is issued, an alarm current can be sent via the analog position feedback. These alarm groups are defined in accordance with Namur NE107. Each individual group can be activated. On Off Alarm Maintenance – Maintenance required Alarm OoSpec. – Operation outside of specifications Alarm Check Fct. – Functional check required Alarm Failure - Failure
Alarm OoSpec.	Off On	
Alarm Check Fct.	Off On	
Alarm Failure	Off On	
Switch 2 Sim.	Off On	Use this parameter to simulate the switch function. Off – Simulation deactivated

Menu: Digit. Feedback / SWITCH 2

... / .../ Digit. Feedback / SWITCH 2

Mask contents	Value range	Description
Switch 2 Funct.	Position Info Diagnostic state	Use this parameter to select whether the switch is to be used as a limit signal generator or for signaling diagnostics messages. Position Info – Evaluate position Diagnostic State – Evaluate diagnostic state
Switch 2 Value	0 … 100%	Use this parameter to configure the position value as a limit signal generator. It is taken into account when the "Switch 2 Funct." parameter is set to "Position Info".
Switch 2 Logic	Active High Active Low	Use this parameter to select the contact logic. Active High (active) = Output current I > 2.1 mA Active Low (active) = Output current I < 1.2 mA
Switch 2 Activ.	Fall Below Exceeding	Use this parameter to select the edge for activating the switch. Disabled Fall Below Exceeding

Menu: UNIVERSAL INPUT

... / .../ UNIVERSAL INPUT

Mask contents	Value range	Description
UI SP Value Max.	4.0 … 20.0 mA	Use this parameter to specify the upper current range limit for the universal input.
UI SP Value Min.	4.0 … 20.0 mA	Use this parameter to specify the lower current range limit for the universal input.
UI Damping	0 … 60 s	Use this parameter to set a damping value for the universal input signal.
UI Charact.	Linear Custom	Use this parameter to select a function that adjusts the behavior of the positioner to the analog input signal according to a predefined course. This linearizes the characteristic curves for the valves and fittings and improves the behavior of the overall control loop. LINEAR - Linear Custom - Can be configured by user The user-configurable characteristic curve cannot be generated and saved in the device locally, however; this can only be done via a PC with the appropriate configuration program (DTM / EDD).
UI Out Value Min.	0.0 …30,000	Use this parameter to define which value is assigned to the minimum universal input signal "UI SP Value min.".
UI Out Value Max.	0.0 …30,000	Use this parameter to define which value is assigned to the maximum universal input signal "UI SP Value max.".

8.4.6 Menu: Communication

... / Communication

Menu / Parameter	Value range	Description
HART version	HART 5 HART 7 Off [1] Find Device Once [1] Find Device Continuous [1]	Use this parameter to define the HART protocol via which the device is to communicate. HART 5 – HART 5.9 HART 7 – HART 7.2 **IMPORTANT (NOTE)** If the HART 7 function "Write protection (Lock ALL)" has been activated via the DTM / EDD and communication has been switched to HART 5 on the device, write protection is canceled when the device is restarted. **IMPORTANT (NOTE)** In the event of a switch from HART 7 to HART 5, if write protection has been activated via HART 7, it is deactivated when the device is restarted. **IMPORTANT (NOTE)** When switching from HART 5 to HART 7, device addresses greater than number 15 are set to 0. If "Find Device Once" is selected, after HART command #73 is received the device responds once with HART command #73, which has the same content as command #0. If "Find Device Continuous" is selected, after HART command #73 is received the device responds repeatedly with HART command #73, which has the same content as command #0. Selecting the "Off" parameter ends the "Find Device" function.

1) Parameter only visible if HART 7 has been selected

8.4.7 Menu: Diagnostics

... / Diagnostics

Menu / Parameter	Value range	Description
PARTIAL STROKE	PS CONFIGURATION PS Interval PS Start Now	"Partial Stroke Test" is used to test the mobility of the safety-related valves and fittings. For this purpose, the valve is moved by a configurable amount in the direction of the safety position (venting of positioner output 1). If this does not happen within the expected time, an alarm is signaled. After the test, the valve follows the current setpoint again. The start of the test is triggered by means of a time interval ("PS Interval"), via the digital input (configuration: Input/Output-> Digital Input-> DI Function -> Partial Stroke Test), or locally at the device ("PS Start Now"). **NOTICE – Property damage!** During the test, the valve no longer follows the setpoint current. This change in the valve position may have a detrimental effect on the process.
HISTOGRAM	Position Timeout Valve Movements Valve Cycles Mainly Used Pos. Universal Input	Use this parameter to select which histogram is to be displayed. In this menu, the number of values or events is assigned to a valve range and displayed as an individual bar graph. The valve ranges are divided up as follows: < 0 % 0 - 10 % 10 - 20 % 20 - 30 % 30 - 40 % 40 - 50 % 50 - 60% 60 - 70 % 70 - 80 % 80 - 90% 90 - 100 % > 100 % The histograms support valve diagnostics and allow conclusions to be drawn about the valve, control quality, wear, and properties of the valves and fittings. Pos. Timeout – Number "Stroke time too slow" Valve Movements – Number of valve movements Valve Cycles – Number of valve strokes Mainly Used Pos. - Frequently used valve position Universal Input – Values of universal input
Travel Counter	0 ... 200.000.000	The "Travel Counter" is used to determine the positioner travel. The counter adds up the distance travelled as a % of the set "working range". Limit values can be configured for the counter (only via DTM / EDD). If the "Travel counter" reaches a limit value, a message is output.
Movement Counter	0 ... 200.000.000	The "Movement Counter" is used to determine the positioner's movements. Any movement that exceeds the defined hysteresis is counted (default setting: 50%). The hysteresis can only be set / changed using a PC (DTM / EDD). Limit values can be configured for the movement counter (only via DTM / EDD). If the counter reaches a limit value, a message is output.
Reset Histograms		Use this parameter to reset the histograms.
Reset Status		Use this parameter to reset the diagnostic status.

Menu: PARTIAL STROKE

... / ... / PARTIAL STROKE

Menu / Parameter	Value range	Description
PS CONFIGURATION	PS Vent Amount Timeout Time Dead Time	PS Vent Amount: Position change in the direction of the safety position (venting of positioner output 1) by which the valve is to be moved. Timeout Time: If the valve does not reach the new valve position, which has changed by the amount defined by "PS Vent Amount", within the defined time (Timeout Time), an alarm is issued. The step response from the DTM can be used to determine the partial stroke parameters.  **IMPORTANT (NOTE)** The default setting for this time is automatically determined by Auto Adjust (only in Auto Adjust mode: Valve Ranges, Full). Dead Time: Use this parameter to set the time in which the valve must have moved out of the end position. The dead time must be less than half the "Timeout Value".  **IMPORTANT (NOTE)** The partial stroke must be tested after configuration!
PS Interval	0 … 1000 Days	Use this parameter to define the time interval according to which the "Partial Stroke Test" is triggered on a cyclical basis.
PS Start Now	Test Passed Test Failed	Use this parameter to trigger the partial stroke directly. The result is shown on the display: Test Passed – Test was successful Test Failed – Test was not successful  **NOTICE – Property damage!** During the test, the valve no longer follows the setpoint current. This change in the valve position may have a detrimental effect on the process.

8.4.8 Menu: Device Info

IMPORTANT (NOTE)
This menu is only used to display the device parameters. The parameters are displayed independently of the configured access level, but cannot be changed.

... / Device Info

Menu / Parameter	Value range	Description
Hardware Rev.		The hardware revision is displayed here.
Software Rev.		The firmware revision is displayed here.
Mounting Date		The installation date is displayed here. The date can only be entered and changed using a PC (DTM / EDD).
Communication Tag		The communication name is displayed here. The name can only be entered and changed using a PC (DTM / EDD).
Long Tag [1)]		The long text for the measuring point tag is displayed here.
Device Address		The measuring point tag for the valves and fittings is displayed here. The tag can only be entered and changed using a PC (DTM / EDD).
Descriptor		The measuring point description is displayed here. The description can only be entered and changed using a PC (DTM / EDD).
Device Message		The device information is displayed here. The description can only be entered and changed using a PC (DTM / EDD).
Pneumatic Type	Single / Safe Singe / Freeze Double / Safe Double / Freeze	The type of pneumatics that the device works with is displayed here. After installing a different type of pneumatics, this type needs to be set in the "Service > Pneumatic" menu. Single / Safe – Single-acting, safety position with no current, with fail-safe function. Single / Freeze – Single-acting, safety position with no current, with fail-freeze function. Double / Safe – Double-acting, safety position with no current, with fail-safe function. Double / Freeze – Double-acting, safety position with no current, with fail-freeze function. **CAUTION – Risk of crushing!** If Service Mode is set to "On", the valve moves to its pneumatic safety position. In the case of the "fail-safe" safety position, the valve moves to the end position in an uncontrolled manner and / or no longer follows the setpoint current. The actuator will therefore move without delay. Do not reach into the adjustment mechanism.
Stroke Time Up	0 … 200 s	The stroke time determined by Auto Adjust (only Auto Adjust types "Stroke" and "Full") for the direction of the 100 % position is displayed here.
Stroke Time Dn	0 … 200 s	The stroke time determined by Auto Adjust (only Auto Adjust types "Stroke" and "Full") for the direction of the 0 % position is displayed here.

1) Only visible with HART7

8.4.9 Menu: Service

... / Service

Menu / Parameter	Value range	Description
Service Mode	Off On [1]	 **CAUTION – RISK OF CRUSHING!** If Service Mode is set to "On", the valve moves to its pneumatic safety position. In the case of the "fail-safe" safety position, the valve moves to the end position in an uncontrolled manner and / or no longer follows the setpoint current. The actuator will therefore move without delay. Do not reach into the adjustment mechanism.
Factory Setting [1]		Load factory settings
ADJUST SENSORS [1]	Adjust All Adjust Outputs	 **IMPORTANT (NOTE)** The supply pressure and the drive must not be pressurized for calibration to atmospheric pressure. Otherwise, the existing pressure is applied as the zero point. In order to set the zero position for the pressure sensors, the pneumatic device connections for the supply air and actuator must be disconnected and vented. The sensors will then be calibrated to the atmospheric pressure.  **CAUTION – RISK OF INJURY!** For calibration of the outputs, the device triggers a sequence to vent the outputs. The end points of the valve are approached without the brakes being applied. Do not reach into the adjustment mechanism. Supply Pressure – Supply air pressure Pressure Y1 – Pressure, output 1 Pressure Y2 – Pressure, output 2
Pneumatic [1]	Single / Safe Singe / Freeze Double / Safe Double / Freeze	Use this parameter to adapt the positioner software to the installed I/P module. This is required when installing a different I/P module type. The type of pneumatics that the device works with is displayed here. Single / Safe – Single-acting, safety position with no current, with fail-safe function. Single / Freeze – Single-acting, safety position with no current, with fail-freeze function. Double / Safe – Double-acting, safety position with no current, with fail-safe function. Double / Freeze – Double-acting, safety position with no current, with fail-freeze function.  **CAUTION – RISK OF CRUSHING!** If an incorrect type of pneumatics is selected, the valve may move into an end position in an uncontrolled manner and / or may no longer follow the setpoint current. The actuator will therefore move without delay. Do not reach into the adjustment mechanism.

1) Parameter is only visible if Service Mode is set to "On".

Menu / Parameter	Value range	Description
Remote Sensor [1]	Off On	If an external position sensor is connected, this parameter must be set to "On".
Sensor Type [1]	Slider Potentiometer Contactless External Sensor No Linearization	Use this parameter to select the version of the installed position sensor. Standard – Standard position sensor Non- Contact – Non-contact position sensor.
SENSOR CALIB. [1]	6 numerical values	Once the position sensor has been replaced, the correction values used for linearizing the sensor characteristic curve (supplied by the factory together with the position sensor) can be entered here.
Sensor Position	0° Position	Use this parameter to set the fine adjustment of the 0° position after a sensor replacement. Press the "Confirm" button to accept the current position as the center position of the sensor range. **IMPORTANT (NOTE)** For this purpose, the positioner feedback shaft must be exactly in the center position.
AO Alarm Current [1]	Low High	Use this parameter to set the alarm current for the analog position feedback. This current is output even if the positioner is in a no-current state (external supply). High – I > 21.5 mA Low – I < 3.6 mA **IMPORTANT (NOTE)** In order to save the parameter in the non-volatile memory on the "analog position feedback" module, the module must be supplied with 24 V during parameterization.

1) Parameter is only visible if Service Mode is set to "On".

9 Maintenance / Repair

IMPORTANT (NOTE)
Manipulation by users shall immediately render the warranty for the device invalid.
To ensure fault-free operation, it is essential that the device is supplied with instrument air that is free of oil, water, and dust.

The positioner does not require any maintenance if it is used as intended under normal operating conditions.

IMPORTANT (NOTE)
Perform a functional check of the emergency shutdown module (option) at least every 2 years. For this purpose, the positioner must move the valve into the safety position with the 24 V DC signal (terminal +85 / -86) interrupted.

10 Error messages

No.	Error message	Possible cause	Troubleshooting					Alarm group
1	Position Measurement Failure	Defective position sensor	Replace position sensor	X				Sensor
2	Valve blocked	Friction too high	Valve requires repair	X				Actuator
3	Positioning Timeout	High friction	Service valve				X	Actuator
4	Positioning instable	Change disturbance variables	Select "Adaptive Control" mode				X	Configuration
5	Position out of travel range	Mounting kit is bent	Check mounting conditions				X	Process
6	Zero-Point displacement	Valve seat is damaged	Service valve				X	Process
8	Setpoint Failure Electronics	Faulty electronics	Replace electronics	X				Electronics
9	Setpoint out of Range	Defective PCS card	Replace PCS card			X		Operation
10	Device not calibrated	Autoadjust has not yet been executed	Execute Autoadjust		X			Configuration
11	I/P-Converter defect	Contaminated supply air	Check supply air and pneumatic output stage	X				Actuator
12	Stroke counter limit exceeded	Many valve strokes	Service valve					Actuator
13	Travel counter limit exceeded	Many valve strokes or vibrating valve	Service valve					Actuator
14	Electronic Temperature Measurement Failure	Faulty electronics	Replace electronics					Electronics
15	Electronic temperature out of limits	Temperature is too high or too low	Check mounting conditions					Operation
16	Configuration Data failure	Output piping mixed up	Check mounting conditions	X				Actuator
17	Electronics - NV chip defect	Faulty electronics	Replace electronics	X				Electronics
18	Non Volatile Data defect	Faulty electronics	Replace electronics	X				Electronics
19	Leakage during operation	Leakage in actuator, piping, connections, or positioner	Start "leakage test"				X	Actuator
20	Leakage chamber 1	Leakage in chamber 1 of the actuator or pneumatics output line 1	Check chamber 1 of the actuator or pneumatics output line 1				X	Actuator
21	Leakage chamber 2	Leakage in chamber 2 of the actuator or pneumatics output line 2	Check chamber 2 of the actuator or pneumatics output line 2				X	Actuator
22	Leakage in actuator	Leakage inside the actuator	Check the actuator diaphragms				X	Actuator

No.	Error message	Possible cause	Troubleshooting					Alarm group
24	Insufficient supply pressure	Supply air pressure is too low or filter is clogged	Check supply air pressure or filter			X		Operation
25	Overpressure from supply	Supply air pressure too high	Check supply air pressure			X		Operation
26	Supply pressure limit low exceeded	Supply air pressure is too low or filter is clogged	Check supply air pressure or filter			X		Operation
27	Supply pressure limit high exceeded	Supply air pressure too high	Check supply air pressure			X		Operation
28	Pressure hammer from supply	Supply air pressure too high	Check supply air pressure			X		Operation
30	Pressure Measurement defect	Faulty pressure measurement	Replace pressure option	X				Electronics
33	Friction limit exceeded	Excessive dynamic friction	Service valve				X	Actuator
34	Stiction limit exceeded	Excessive stiction	Service valve				X	Actuator
35	Universal Input out of range	Incorrectly scaled universal input signal or faulty universal input device	Check parameter settings of universal input or universal input device			X		Actuator
36	Partial Stroke failed	Friction is too high	Check valve				X	Actuator
37	Option Module defect	Defective option module	Replace option module				X	Electronics
38	Universal Input Limit exceeded	Universal input limit value overshot	Depends on application				X	Actuator
39	Analog Output Simulation active							
40	Binary Output Simulation active							Actuator
41	Fail Safe Active - via Device Error	Faulty electronics	Replace electronics	X				Electronics
42	Fail Safe Active - via User	Safety position activated by the user	Switch off service mode				X	Operation
43	Binary Input active	Digital input activated by the user	Deactivate the digital input				X	Operation
44	Switchpoint 1 exceeded	Valve has passed limit 1 position	Depends on application				x	Process
45	Switchpoint 2 exceeded	Valve has passed limit 2 position	Depends on application				x	Process
202	Mess1 Extern Access	Communication with the device is performed via HART	Depends on application		X			Configuration
203	Mess2 All Locked	Local operation is locked	Activate the digital input		X			Configuration
204	Mess3 Conf. Locked	Configuration is locked	Activate the digital input		X			Configuration
205 [1]	Mess5 Squawk	"Find device" activated	Deactivate function in DTM or EDD		X			Configuration

1 Function can only be used via HART7

11 Technical Data

11.1 Inputs

Two-wire technology	
Nominal range	4 ... 20 mA
Limit values	Max.: 50 mA (overload) Min.: 3.6 mA
Start	≥ 3.8 mA
Load voltage at 20 mA	9.7 V
Impedance at 20 mA	485 Ω

Digital input	
Control voltage	0 … 5 V DC (switching state logical "0") 11 … 30 V DC (switching state logical "1")
Current	max. 4 mA

11.2 Outputs

Digital output (control circuit to DIN 19234/NAMUR)	
Supply voltage	5 ... 30 V DC
Switching state logical	„0": Current > 0.35 mA … < 1.2 mA „1": Current > 2.1 mA
Effective direction (configurable)	normally logical "0" or logical "1"

11.3 Cable connections

Electrical connections	
4 … 20 mA input	Screw terminals max. 2.5 mm² (AWG 14)
Options	Screw terminals max. 1.0 mm² (AWG 18)
Cable entry	2 threaded bores 1/2&#x1e;14 NPT/M20 x 1.5 (cable gland/pipe plug optional)

cross section	
Rigid / flexible wires	0.14 ... 2.5 mm² (AWG 26 ... AWG 14)
Flexible with wire end sleeve	0.25 ... 2.5 mm² (AWG 23 ... AWG 14)
Flexible with wire end sleeve no plastic sleeve	0.25 ... 1.5 mm² (AWG 23 ... AWG 17)
Flexible with wire end sleeve with plastic sleeve	0.14 ... 0.75 mm² (AWG 26 ... AWG 20)

Multi-wire connection capacity (2 wires of the same cross section)	
Rigid / flexible wires	0.14 ... 0.75 mm² (AWG 26 ... AWG 20)
Flexible with wire end sleeve no plastic sleeve	0.25 ... 0.75 mm² (AWG 23 ... AWG 20)
Flexible with wire end sleeve with plastic sleeve	0.5 ... 1.5 mm² (AWG 21 ... AWG 17)

Options

cross section	
Rigid / flexible wires	0.14 ... 1.5 mm² (AWG 26 ... AWG 17)
Flexible with wire end sleeve no plastic sleeve	0.25 ... 1.5 mm² (AWG 23 ... AWG 17)
Flexible with wire end sleeve with plastic sleeve	0.25 ... 1.5 mm² (AWG 23 ... AWG 17)

Multi-wire connection capacity (2 wires of the same cross section)	
Rigid / flexible wires	0.14 ... 0.75 mm² (AWG 26 ... AWG 20)
Flexible with wire end sleeve no plastic sleeve	0.25 ... 0.5 mm² (AWG 23 ... AWG 22)
Flexible with wire end sleeve with plastic sleeve	0.5 ... 1 mm² (AWG 21 ... AWG 18)

11.4 Travel

Rotation angle	
Used range	25 … 270° for rotary actuator 25 … 60° for linear actuator
Travel limit	Min. and max. limits, freely configurable in range 0 ... 100 % of total travel (min. range > 20 %)
Travel time prolongation	Range of 0 ... 200 seconds, separately for each direction
Dead band time limit	Setting range 0 ... 200 seconds (monitoring parameter for control until the deviation reaches the dead band)

11.5 Pneumatic connections

Input / Output	
Threaded holes	G 1/4 1/4-18 NPT

Compressed air output	
Range	0 ... 10 bar (0 ... 145 psi)
Air capacity	> 7 kg/h = 5.5 Nm^3/h = 3.2 sfcm at 1.4 bar (20 psi) supply air pressure
	> 50 kg/h = 40 Nm^3/h = 23 sfcm at 10 bar (145 psi) supply air pressure
Output function	For single or double-acting actuators
	Air is vented from actuator or actuator is blocked in case of (electrical) power failure
Shut-off values	End position 0 % = 0 ... 45 % End position 100 % = 55 ... 100 %

11.6 Air supply

Instrument air [1]	
Purity: max. particle size	5 µm
Purity: max. particle density	5 mg/m^3
Oil contents: max. concentration	1 mg/m^3
Pressure dew point	10 K below operating temperature
Supply pressure	1.4 ... 10 bar (20 ... 145 psi)
Air consumption	< 0.03 kg/h/0.015 scfm [2]

1) free of oil, water and dust acc. to DIN / ISO 8573-1
Pollution and oil content according to Class 3
2) Independent of supply pressure

11.7 Accessories

11.7.1 Mounting material

— Attachment kit for linear actuators to DIN/IEC 534/NAMUR
— Attachment kit for rotary actuators to VDI/VDE 3845
— Attachment kit for integral mounting to control valves
— Attachment kit for actuator-specific mounting to control valves

11.7.2 Pressure gauge block (optional)

— With pressure gauges for supply and output pressure. Pressure gauges with housing ø 28 mm (1.10 in), with connection block in aluminum, black

11.7.3 PC adapter for communication

USB-HART modem for HART communication (see data sheet 63-6.71)

11.7.4 PC software for remote configuration and operation

DAT200 Asset Vision Basic with DTM for EDP300 (see data sheet DS/DTM/DAT200)

11.8 Housing

Material / Degree of protection	
Aluminum	Optional stainless steel 1.4404 (316L)
Degree of protection	IP 65 / NEMA 4X (NEMA 4X does not permit overhead mounting)

Surface / color (aluminum housing only)	
Dipping varnish	With epoxy resin, stove-hardened
Housing varnished black	RAL 9005 RAL 9002

Weight	
Aluminum	2.4 kg (2.40 kg)
Stainless steel 1.4404 (316L)	5.5 kg (5.50 kg)

11.8.1 Mounting orientation

Any

11.9 Transmission data and influences

Output Y1	
Increasing setpoint signal	0 ... 100 %
	Increasing pressure at output
Decreasing setpoint signal	0 ... 100 %
	Decreasing pressure at output

Action (setpoint signal)	
Increasing setpoint	4 ... 20 mA = actuator position 0 ... 100 %
Decreasing setpoint	20 ... 4 mA = actuator position 0 ... 100 %

Characteristic curve (travel = f {setpoint signal})	
Linear	Equal percentage 1:25 or 1:50 or 25:1 or 50:1 [1]
Deviation	< 0,5 %
Configurable zone	0 ... 100 %,
Configurable dead zone	0,1 ... 10 %,
Resolution (A/D conversion)	> 16,000 steps
Sample rate	20 ms
Ambient temperature influence	< 0.5% for each 10 K
Influence of vibration	< 1 % to 10 g and 80 Hz

1) Freely configurable with 20 reference points

11.9.1 Seismic vibration

Meets requirements of DIN/IEC 60068-3-3 Class III for strong and strongest earthquakes.

11.9.2 Influence of mounting orientation

Not measurable.

11.9.3 Noise emissions

Max. 100 db (A)

Noise-reduced version max. 85 db (A)

11.9.4 Complies with the following directives

— EMC Directive 2004/108/EC

— EC Directive for CE conformity marking

11.10 Environmental capabilities

Ambient temperature range	
For operation, storage, and transport	-40 ... 85 °C (-40 ... 185 °F)
When using proximity switches SJ2-S1N (NO)	-25 ... 85 °C (-13 ... 185 °F)

Relative humidity	
Operational with housing closed and air supply switched on	95 % (annual average), condensation permissible
Transport and storage	75 % (annual average)

12 Optional upgrades

12.1 Module for analog position feedback[1)]

Signal range	4 ... 20 mA (configurable split ranges)
Supply, 2-wire circuitry	24 V DC (10 ... 30 V DC)
Characteristic curve (configurable)	Increasing or decreasing
Deviation	< 1 %

Without a signal from the positioner (e.g., “no power” or “initializing”) the module sets the output to > 20 mA (alarm level)

12.2 Module for binary position feedback[1)]

Two switches for digital position feedback (position adjustable within the range of 0 ... 100 %, ranges cannot overlap)
Current circuits acc. to DIN 19234 / NAMUR

Supply voltage	5 ... 30 V DC
Signal current	< 1.2 mA: Switching state logical "0" > 2.1 mA: Switching state logical "1"
Direction of action	normally logical "0" or logical "1" (configurable)

12.3 Module for universal input [1)]

Module for a 4 … 20 mA input for universal use.
The range can be scaled. It is used for advanced valve diagnostics. For example, an ultrasonic sensor can be connected to detect a faulty valve seat or a phonometer can be connected to detect cavitation. The limit values for detecting overshoot can be freely selected.

Universal input	
Nominal range	4 ... 20 mA
Load voltage at 20 mA	8 V
Impedance at 20 mA	400 Ω

12.4 Module for the emergency shutdown function[1)]

Supply voltage	24 V DC (20 ... 30 V DC) (electrically isolated from input signal)
Safe position active	At voltage < 5 V

Explosion protection: see certificate (operating instructions)

1) There are two slots for the option modules. Any combination of different option modules is possible. However, identical option modules cannot be combined.

A separate 24 V DC signal is applied to the emergency shutdown module; it connects the signal from the microprocessor through to the I/P module.
When the 24 V DC signal is interrupted, the pneumatic module executes the respective safety function, depending on the mechanical construction:
The positioner output 1 is depressurized, and the valve is moved to the safe position. In case of a "double-acting" actuator the second output 2 is additionally pressurized.
The emergency shutdown module works independently of the mother board, i.e., all information from the actuator is available in the control system at any time.

12.5 Binary position feedback with proximity switches

Two proximity switches for independent position signaling.
Switching points adjustable between 0 … 100 %
Current circuits acc. to DIN 19234 / NAMUR

Supply voltage	5 ... 11 V DC
Signal current	< 1.2 mA: Switching state logical "0" > 2.1 mA: Switching state logical "1"

12.6 Direction of action (logical state)

	Position			
Proximity switch	< Lim. 1	> Lim. 1	< Lim. 2	> Lim. 2
SJ2-SN (NC)	0	1	1	0
SJ2-S1N (NO)	1	0	0	1

When using proximity switch SJ2_S1N (NO), the positioner may only be used at an ambient temperature range of -25 ... 85 °C (-13 ... 185 °F).

12.7 Binary position feedback with 24 V microswitches

Two microswitches for independent position signaling.
Switching points adjustable between 0 … 100 %.

Voltage	max. 24 V AC / DC
Load rating	max. 2 A
Contact surface	10 µm Gold (AU)

12.8 Mechanical position indicator

Indicator disk in enclosure cover, linked with positioner feedback shaft.

12.9 Contactless position sensor (option)

In difficult ambient conditions (constant valve movements, for example, which are transmitted to the sensor axis by the process pressure), the positioner can be fitted with a contactless position sensor.

12.10 Pressure option

The pressure option comprises 3 absolute pressure sensors which facilitate pressure-based valve diagnostics (valve signature, for example).
The supply air pressure and the output pressures can also be monitored. The zero points of the pressure sensors can be calibrated both locally on the device and using the DTM.

These options are also available for retrofitting by Service.

13 Ex relevant specifications

13.1 Intrinsic safety gas and dust ATEX / IECEx

ZELM 11 ATEX 0456 X (EC type examination certificate)
II 1G Ex ia IIC T6 or T4 Ga
II 1D Ex iaD IIIC T55°C or T100°C Da
Ta = -40 ° … 40 ° or 85 °C

IECEx ZLM 11.0001 X
Ex ia IIC T6 or T4 Ga
Ex iaD IIIC T55 °C or T100°C Da
Ta = -40 ° … 40 ° or 85 °C

Temperature class	Ambient temperature	Surface temperature
T4	-40 … 85 °C (-40 … 185 °F)	100 °C (212 °F)
T6	-40 … 40 °C (-40 … 104 °F)	55° C (131 °F)

13.2 Electrical connections gas and dust ATEX / IECEx

13.2.1 Signal circuit (AI) (terminals +11 -12)

Temperature class T1 – T4	Temperature class T6
U_i = 30 V	U_i = 28 V
I_i = 320 mA	I_i = 320 mA
P_i = 1.1 W	P_i = 0.8 W
C_i = 6.5 nF without pressure option	
C_i = 8.8 nF with pressure option	
L_i = negligibly small	

13.2.2 Switching input (DI) (terminals +81 -82)

Temperature class T1 – T4	Temperature class T6
U_i = 30 V	U_i = 28 V
P_i = 500 mW	P_i = 400 mW
C_i = 4.2 nF	
L_i = negligibly small	

13.2.3 Switching output (DO) (terminals +83 -84)

Temperature class T1 – T4	Temperature class T6
U_i = 30 V	U_i = 28 V
P_i = 500 mW	P_i = 400 mW
C_i = 4.2 nF	
L_i = negligibly small	

13.2.4 Shutdown module (terminals +41 -42)

Temperature class T1 – T6
U_i = 30 V
P_i = 1 W
C_i = 5.3 nF
L_i = negligibly small

13.2.5 Analog feedback module (terminals +31 -32)

Temperature class T1 – T4	Temperature class T6
U_i = 30 V	U_i = 28 V
I_i = 320 mA	I_i = 320 mA
P_i = 1 W	P_i = 0.8 W
C_i = 11.3 nF	
L_i = 150 µH	

13.2.6 Universal analog input module (terminals +21 -22)

Temperature class T1 – T4	Temperature class T6
U_i = 30 V	U_i = 28 V
I_i = 320 mA	I_i = 320 mA
P_i = 1 W	P_i = 0.8 W
C_i = 11.3 nF	
L_i = 150 µH	

13.2.7 Digital feedback module (terminals: SW 1: +41 -42, SW 2: +51 -52)

Temperature class T1 – T4	Temperature class T6
Per output:	Per output:
U_i = 30 V	U_i = 28 V
P_i = 0.5 W	P_i = 0.4 W
I_i = 250 mA	
C_i = 2.2 nF per output	
L_i = negligibly small	

13.2.8 Digital output module (proximity switches) terminals limit 1: +51 -52, limit 2: +41 -42

Temperature class T1 – T4	Temperature class T6
According to EC type examination certificate PTB 00 ATEX 2049X	

No IECEx

13.3 Equipment in type of protection "n" or device dust ignition protection through housing "tb"

ZELM 11 ATEX 0456 X (EC type examination certificate)
II 3G Ex nA IIC T6 or T4 Gc
II 2D Ex tb IIIC T55°C or T100°C Db
Ta = -40 ° … 40 ° or 80

IECEx ZLM 11.0001 X
Ex nA IIC T6 or T4 Gc
Ex tb IIIC T55 °C or T100°C Db
Ta = -40 ° … 40 ° or 80

Temperature class	Ambient temperature	Surface temperature
T4	-40 … 80 °C (-40 … 176 °F)	100 °C (212 °F)
T6	-40 … 40 °C (-40 … 104 °F)	55° C (131 °F)

13.4 Electrical connections non-sparking ATEX/IECEx

13.5 Equipment in type of protection "n" or device dust ignition protection through housing "tb"

13.5.1 Signal circuit (AI) (terminals +11 -12)

$I_N \leq 22$ mA
$U_{max} \leq 30$ V

13.5.2 Switching input (DI) (terminals +81 -82)

$U_N \leq 30$ V

13.5.3 Switching output (DO) (terminals +83 -84)

$U_N \leq 30$ V

13.5.4 Shutdown module (terminals +41 -42)

$U_N \leq 30$ V

13.5.5 Analog feedback module (UAI) (terminals +31 -32)

$I_N \leq 22$ mA
$U_N \leq 30$ V

13.5.6 Universal analog input module (terminals +21 -22)

$I_N \leq 22$ mA
$U_{max} \leq 30$ V

13.5.7 Digital feedback module (terminals: SW 1: +41 -42, SW 2: +51 -52)

Per output:
$U_N \leq 30$ V

13.5.8 Digital output module (proximity switches) terminals limit 1: +51 -52, limit 2: +41 -42

Per output:
$I_N \leq 25$ mA
$U_N \leq 16$ V

When using proximity switch SJ2_S1N (NO), the positioner may only be used at an ambient temperature range of -25 ... 80 (77 °F to 176 °F).

14 Appendix

14.1 Other relevant documents

— Data sheet for PositionMaster EDP300 (DS/EDP300)
— Commissioning instruction for PositionMaster EDP300 (CI/EDP300)
— SIL safety manual for PositionMaster EDP300

14.2 Approvals and certifications

The version of the device as provided by us meets the requirements of the following EU directives:

— EMC Directive 2004/108/EC

Explosion protection

Designation relating to intended use in potentially explosive atmospheres in compliance with:

— ATEX Directive

— IEC standards

— FM Approvals (US)

— CSA International (Canada)

IMPORTANT (NOTE)

All documentation, declarations of conformity, and certificates are available in ABB's download area.
www.abb.com/instrumentation

EG-KONFORMITÄTSERKLÄRUNG

EC DECLARATION OF CONFORMITY
ATTESTATION DE CONFORMITE C.E.

Hersteller:	**ABB Automation Products GmbH**	
Manufacturer / Fabricant:	**Minden**	
Anschrift:	**Schillerstraße 72**	
Address / Adresse:	**D-32425 Minden**	
Produktbezeichnung:	**Elektropneumatischer Stellungsregler -**	**PositionMaster EDP300**
Product name:	*Electro-Pneumatic Positioner –*	**PositionMaster EDP300**
Désignation du produit:	*Positionneur Électro-Pneumatique –*	**PositionMaster EDP300**

Das Produkt stimmt mit den Vorschriften folgender Europäischer Richtlinien überein:
This product meets the requirements of the following European directives:
Les produits répondent aux exigences des Directives C.E. suivantes:

2004/108/EG	**EMV-Richtlinie ***
2004/108/EC	*Electromagnetic Compatibility Directive **
2004/108/CE	*Directives concernant la compatibilité électromagnétique **
2006/95/EG	**Niederspannungsrichtlinie ***
2006/95/EC	*Low Voltage Directive **
2006/95/EC	*Directive Basse Tension**

*** einschließlich Änderungen und deutscher Umsetzung durch das EMVG und Gerätesicherheitsgesetz**
** including alterations and German realization by the EMC law and the instruments safety law*
** y compris les modifications et la réalisation allemande par la loi concernant la compatibilité électromagnétique et la sécurité d'appareils*

Die Übereinstimmung mit den Vorschriften dieser Richtlinien wird nachgewiesen durch die vollständige Einhaltung folgender Normen:
Conformity with the requirements of these Directives is proven by complete adherence to the following standards:
La conformité avec les exigences de ces directives est prouvée par l'observation complète des normes suivantes:

EN 61 000-6-3 / EN 61 000-4-2 / EN 61 000-4-3 / EN 61 000-4-4 / EN 61 000-4-5 / EN 61 000-4-6 / EN 61 000-4-8 / EN 61 000-4-11

Für Geräte in Ex-Ausführung gemäß Kennzeichnung auf Typschild gilt zusätzlich:
For products in Ex design according to identification on nameplate the following is additionally applicable:
Pour des produits en exécution Ex selon marque sur plaque signalétique le suivant est aussi applicable:

94/9/EC **ATEX-Richtlinie**
ATEX Directive
ATEX Directive

CE 0044

Ex: Es gelten die Normen der entsprechenden EG-Baumusterprüfbescheinigungen
The standards of the relevant type-examination certificates shall apply
Il convient d'appliquer les normes des certificats d'homologation CE

23.09.2011		
Datum *Date* *Date*	**i. V. Dr. Wolfgang Scholz** **Leiter R&D** Head of R&D Responsable R&D	**i. V. Manfred Klüppel** **Leiter Qualitätssicherung** Head of Quality Assurance Responsable Assurance de la Qualité

Statement on the contamination of devices and components

Repair and / or maintenance work will only be performed on devices and components if a statement form has been completed and submitted.
Otherwise, the device / component returned may be rejected. This statement form may only be completed and signed by authorized specialist personnel employed by the operator.

Customer details:

Company:	
Address:	
Contact person:	Telephone:
Fax:	E-Mail:

Device details:

Typ:	Serial no.:
Reason for the return/description of the defect:	

Was this device used in conjunction with substances which pose a threat or risk to health?

☐ Yes ☐ No

If yes, which type of contamination (please place an X next to the applicable items)?

Biological	☐	Corrosive / irritating	☐	Combustible (highly / extremely combustible)	☐
Toxic	☐	Explosiv	☐	Other toxic substances	☐
Radioactive	☐				

Which substances have come into contact with the device?

1.
2.
3.

We hereby state that the devices / components shipped have been cleaned and are free from any dangerous or poisonous substances.

Town/city, date — Signature and company stamp

Contact us

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