

PositionMaster EDP300

Digital Positioner



Short product description

Digital positioner for the positioning of pneumatically controlled actuators.

Devices firmware version: 01.00.09

Further information

Additional documentation on PositionMaster EDP300 is available to download free of charge at www.abb.com/positioners.

Alternatively simply scan this code:



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1 Safety

1.1 General information and instructions

These instructions are an important part of the product and must be retained for future reference.

Installation, commissioning, and maintenance of the product may only be performed by trained specialist personnel who have been authorized by the plant operator accordingly. The specialist personnel must have read and understood the manual and must comply with its instructions.

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 nor an amendment to any previous or existing agreement, promise or legal relationship.

Modifications and repairs to the product may only be performed if expressly permitted by these instructions.

Information and symbols on the product must be observed. These may not be removed and must be fully legible at all times.

The operating company must strictly observe the applicable national regulations relating to the installation, function testing, repair and maintenance of electrical products.

1.2 Warnings

The warnings in these instructions are structured as follows:

DANGER

The signal word "DANGER" indicates an imminent danger. Failure to observe this information will result in death or severe injury.

WARNING

The signal word "WARNING" indicates an imminent danger. Failure to observe this information may result in death or severe injury.

CAUTION

The signal word "CAUTION" indicates an imminent danger. Failure to observe this information may result in minor or moderate injury.

NOTICE

The signal word "NOTICE" indicates useful or important information about the product.

The signal word "NOTICE" is not a signal word indicating a danger to personnel. The signal word "NOTICE" can also refer to material damage.

1.3 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 data sheet.

- The maximum operating temperature must not be exceeded.
- The permissible ambient temperature must not be exceeded.
- The housing protection type must be observed.

1.4 Improper use

The following are considered to be instances of improper use of the device:

- For use as a climbing aid, e.g. for mounting purposes.
- For use as a support for external loads, e.g. as a support for piping, etc.
- Material application, e.g. by painting over the name plate or welding/soldering on parts.
- Material removal, e.g. by spot drilling the housing.

2 Use in potentially explosive atmospheres according to ATEX and IECEx

i NOTICE

Further information on the approval of devices for use in potentially explosive atmospheres can be found in the type examination certificates or the relevant certificates at www.abb.com/positioners.

2.1 Product identification

Depending on the type of explosion protection, an Ex name plate is attached next to the main name plate on the positioner.

This indicates the level of explosion protection and the device's relevant Ex certificate.

2.2 Ex-marking

ATEX

Type Examination Test Certificate	ZELM 11 ATEX 0456 X
-----------------------------------	---------------------

II 1G Ex ia IIC T6 or T4 Ga

II 1D Ex iaD IIIC T55°C or T100°C Da

Ta = -40°C ... 40°C or 85°C

II 3G Ex nA IIC T6 or T4 Gc

II 2D Ex tb IIIC T55°C or T100°C Db

Ta = 40°C ... 40°C or 80°C

IECEx

Type Examination Test Certificate	IECEx ZLM 11.0001 X
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Ex ia IIC T6 or T4 Ga

Ex iaD IIIC T55 °C or T100°C Da

Ta = -40 ° ... 40 ° or 85

Ex nA IIC T6 or T4 Gc

Ex tb IIIC T55 °C or T100°C Db

Ta = -40 ° ... 40 ° or 80 °C

EAC TR-CU-012

Ex ia IIC T4/T6 Ga X

Ex ia IIIC T100°C/T55°C Da IP65

EX nA IIC T4/T6 Gc X

Ex tb IIIC T100°C/T55°C Db IP65

2.3 Installation

The installation, commissioning, maintenance and repair of devices in potentially explosive atmospheres must only be carried out by appropriately trained personnel. Works may be carried out only by persons, whose training has included instructions on different types of protection and installation techniques, concerned rules and regulations as well as general principles of zoning. The person must possess the appropriate competences for the type of work to be conducted.

When operating with combustible dusts, comply with EN 60079-31.

The safety instructions for electrical apparatus in potentially explosive areas must be in accordance with Directive 2014/34/EC (ATEX) and IEC60079-14 (Installation of electrical equipment in potentially explosive areas).

Comply with the applicable regulations for the protection of employees to ensure safe operation.

i NOTICE

Observe the device's applicable specifications and special conditions in accordance with the type examination certificate or other certificates!

- Any manipulation of the device by users is not permitted. Only the manufacturer or an explosion protection specialist may modify the device
- The device may only be operated with instrument air that is free of oil, water, and dust.

2.3.1 Cable gland

Limited temperature range of the M20 x 1.5 plastic cable gland for explosion protection variants.

The permissible ambient temperature range of the cable gland is -20 ... 80 °C (-4 ... 176 °F). When using the cable gland, make sure that the ambient temperature is within this range.

The cable gland must be installed in the housing with a tightening torque of 3.8 Nm. When installing the connection of the cable gland and cable, check for tightness to ensure that the required IP rating is met.

2.3.2 Operation with flammable gas

Observe the following points when operating a device with flammable gases:

- The device must be used in accordance with the specifications in the relevant certificate.
- Only the design with the "Intrinsic Safety" type of protection has been approved for operation with natural gas. The pneumatic outputs must be vented in non-Ex areas.
- The maximum ambient temperature must not exceed 60 °C (140 °F).
- During operation with flammable gases in type of protection "Ex n", the device may only be operated with approved cable glands.
- During operation with flammable gases, the cover cap for the air outlets can be removed, and the air outlets can be tubed separately. Both pipes may not be joined in one pipe.

Use in areas with combustible dust

Observe the following points when operating a device with combustible dust:

- To prevent loss of type of protection, the housing may not be opened.
- Only use cable glands which are approved for the type of protection and correspond to IP rating \geq IP 6X.
- Avoid hazardous propagating brush discharge.

2.3.3 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 a hazardous atmosphere getting into the pneumatic system or that any hazardous atmosphere is removed prior to compression by taking suitable action. When commissioning in temperature class T6, flush the pneumatic system with 1.4 (+/- 0.1) bar until all traces of any explosive mixture have been removed (at least 5 minutes). Ventilate and evacuate the EDP300 fully several times.

2.4 ATEX and IECEx temperature data

2.4.1 Type of protection Ex i, intrinsic safety

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)

2.4.2 Type of protection Ex n - non-sparking

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)

2.5 ATEX und IECEx electrical data

2.5.1 Type of protection Ex i, intrinsic safety

Basic device

Signal circuit (AI)	
Terminals	+11 / -12
Temperature class T1 – T4	Temperature class T6
$U_i = 30 \text{ V}$	$U_i = 28 \text{ V}$
$I_i = 320 \text{ mA}$	$I_i = 320 \text{ mA}$
$P_i = 1.1 \text{ W}$	$P_i = 0.8 \text{ W}$
$C_i = 6.5 \text{ nF}$ without pressure option; 8.8 nF with pressure option	
$L_i = \text{negligibly small}$	

Digital input (DI)	
Terminals	+81 / -82
Temperature class T1 – T4	Temperature class T6
$U_i = 30 \text{ V}$	$U_i = 28 \text{ V}$
$P_i = 500 \text{ mW}$	$P_i = 400 \text{ mW}$
$C_i = 4.2 \text{ nF}$	
$L_i = \text{negligibly small}$	

Digital output (DO)	
Terminals	+83 / -84
Temperature class T1 – T4	Temperature class T6
$U_i = 30 \text{ V}$	$U_i = 28 \text{ V}$
$P_i = 500 \text{ mW}$	$P_i = 400 \text{ mW}$
$C_i = 4.2 \text{ nF}$	
$L_i = \text{negligibly small}$	

Option modules

Module for the emergency shutdown function

Terminals	+85 / -86
Temperature class T1 – T6	
$U_i = 30 \text{ V}$	
$P_i = 1 \text{ W}$	
$C_i = 5.3 \text{ nF}$	
$L_i = \text{negligibly small}$	

Module for analog feedback (AO)

Terminals	+31 / -32
Temperature class T1 – T4 Temperature class T6	
$U_i = 30 \text{ V}$	$U_i = 28 \text{ V}$
$I_i = 320 \text{ mA}$	$I_i = 320 \text{ mA}$
$P_i = 1 \text{ W}$	$P_i = 0.8 \text{ W}$
$C_i = 11.3 \text{ nF}$	
$L_i = 150 \text{ }\mu\text{H}$	

Module for universal input (UAI)

Terminals	+21 / -22
Temperature class T1 – T4 Temperature class T6	
$U_i = 30 \text{ V}$	$U_i = 28 \text{ V}$
$I_i = 320 \text{ mA}$	$I_i = 320 \text{ mA}$
$P_i = 1 \text{ W}$	$P_i = 0.8 \text{ W}$
$C_i = 11.3 \text{ nF}$	
$L_i = 150 \text{ }\mu\text{H}$	

Module for digital feedback (SW1 / SW2)

Terminals	SW 1: +41 / -42 SW 2: +51 / -52
Temperature class T1 – T4 Temperature class T6	
Per output:	Per output:
$U_i = 30 \text{ V}$	$U_i = 28 \text{ V}$
$P_i = 0.5 \text{ W}$	$P_i = 0.4 \text{ W}$
$I_i = 250 \text{ mA}$	
$C_i = 2.2 \text{ nF per output}$	
$L_i = \text{negligibly small}$	

Limit switch (Limit 1 / Limit 2)

Limit monitor with proximity switch¹⁾

Terminals	Limit 1: +51 / -52 Limit 2: +41 / -42
Temperature class T1 – T4 Temperature class T6	
In accordance with type examination certificate PTB 00 ATEX 2049X	

1) No IECEx approval

2.5.2 Type of protection Ex n - non-sparking Basic device

Signal circuit (AI)

Terminals	+11 / -12
Electrical values	$I_N \leq 22 \text{ mA}$; $U_{\max} \leq 30 \text{ V}$

Digital input (DI)

Terminals	+81 / -82
Electrical values	$U_N \leq 30 \text{ V}$

Digital output (DO)

Terminals	+83 / -84
Electrical values	$U_N \leq 30 \text{ V}$

Option modules

Module for the emergency shutdown function

Terminals	+85 / -86
Electrical values	$U_N \leq 30 \text{ V}$

Module for analog feedback (AO)

Terminals	+31 / -32
Electrical values	$I_N \leq 22 \text{ mA}$; $U_N \leq 30 \text{ V}$

Module for universal input (UAI)

Terminals	+21 / -22
Electrical values	$I_N \leq 22 \text{ mA}$; $U_{\max} \leq 30 \text{ V}$

Module for digital feedback (SW1 / SW2)

Terminals	SW 1: +41 / -42 SW 2: +51 / -52
Electrical values	Per output: $U_N \leq 30 \text{ V}$

Limit switch (Limit 1 / Limit 2)

Limit monitor with proximity switch¹⁾

Terminals	Limit 1: +51 / -52 Limit 2: +41 / -42
Electrical values	Per output: $I_N \leq 25 \text{ mA}$; $U_N \leq 16 \text{ V}$

1) No IECEx approval

3 Use in potentially explosive atmospheres in accordance with FM and CSA

i NOTICE

Further information on the approval of devices for use in potentially explosive atmospheres can be found in the type examination certificates or the relevant certificates at www.abb.com/positioners.

3.1 Product identification

Depending on the type of explosion protection, an Ex name plate is attached next to the main name plate on the positioner.

This indicates the level of explosion protection and the device's relevant Ex certificate.

3.2 Ex-marking

FM

FM Approval	3043773
Control drawing	901305

IS, CL. I, Div. 1, Gr. A, B, C, D, T4 or T6

IS, CL. II, Div. 1, Gr. E, F, G, T4 or T6

IS, CL. III, Div. 1, T4 or T6

Class I Zone 0, AEx ia IIC, T4 or T6

NI, CL. I, Div. 2, Gr. A, B, C, D, T4 or T6

NI, CL. II, Div. 2, Gr. E, F, G, T4 or T6

NI, CL. III, Div. 2, T4 or T6

Class I Zone 2, IIC T4 or T6

T4 Ta=(-40 ... +85) °C; (-40 ... +185) °F

T6 Ta=(-40 ... +40) °C; (-40 ... +104) °F

Type 4X

CSA

Certificate	2419437
Control drawing	901305

CL I, Div. 1, Gr. A, B, C, D, T4 or T6

CL II, Div. 1, Gr. E, F, G, T4 or T6

CL III, Div. 1

Class I Zone 0, AEx ia IIC T4 or T6

CL I, Div. 2, Gr. A, B, C, D, T4 or T6

CL II, Div. 2, Gr. E, F, G, T4 or T6

CL III, Div. 2, T4 or T6

Class I Zone 2, AEx nA IIC, T4 or T6

T4 Ta=(-40 ... +85) °C; (-40 ... +185) °F

T6 Ta=(-40 ... +40) °C; (-40 ... +104) °F

IP64

3.3 Installation

The installation, commissioning, maintenance and repair of devices in areas with explosion hazard must only be carried out by appropriately trained personnel.

The operator must strictly observe the applicable national regulations with regard to installation, function tests, repairs, and maintenance of electrical devices. (e.g. NEC, CEC).

i NOTICE

Observe the device's applicable specifications and special conditions in accordance with the relevant certificate.

- Any manipulation of the device by users is not permitted. Only the manufacturer or an explosion protection specialist may modify the device
- The device may only be operated with instrument air that is free of oil, water, and dust.

3.3.1 Cable gland

Limited temperature range of the M20 x 1.5 plastic cable gland for explosion protection variants.

The permissible ambient temperature range of the cable gland is -20 ... 80 °C (-4 ... 176 °F). When using the cable gland, make sure that the ambient temperature is within this range. The cable gland must be installed in the housing with a tightening torque of 3.8 Nm. When installing the connection of the cable gland and cable, check for tightness to ensure that the required IP rating is met.

3.3.2 Operation with flammable gas

Observe the following points when operating a device with flammable gases:

- The device must be used in accordance with the specifications in the relevant certificate.
- Only the design with the IS "Intrinsic Safety" type of protection may be operated with natural gas. The pneumatic outputs must be vented in non-hazardous areas.
- During operation with flammable gases, the cover cap for the air outlets must be removed, and the air outlets can be tubed separately. Both pipes may not be joined in one pipe.
- The maximum ambient temperature must not exceed 60 °C (140 °F).

See also Control Drawing 901305.

3.3.3 Use in areas with combustible dust

Observe the following points when operating a device with combustible dust:

- To prevent loss of type of protection, the housing may not be opened.
- Only use cable glands which are approved for the type of protection and correspond to IP rating \geq IP-6X.
- Avoid hazardous propagating brush discharge.

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

3.4 Temperature data

NOTICE

Legibility of the display is guaranteed at an ambient temperature of -20 ... 70 °C. At -20°C and lower, legibility can become limited. Legibility can be compensated by adjusting contrast. Contrast adjustment can be made manually directly on the device.

The display can fail at temperatures below -20°C. Moreover, functioning of the device is guaranteed up to -40°C.

FM

Temperature class	Ambient temperature T_{amb}
T1 ... T4	-40 °C ... 85 °C
T6	-40 °C ... 40 °C

CSA

Temperature class	Ambient temperature T_{amb}
T4	-40 °C ... 85 °C
T6	-40 °C ... 40 °C

3.5 Electrical data

Basic device

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; 8.8 nF with pressure option	
$L_i =$ negligibly small	

Digital 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	

Digital 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	




Option modules

Module for the emergency shutdown function	
Terminals	+85 / -86
Temperature class T1 – T6	
$U_i = 30 \text{ V}$	
$P_i = 1 \text{ W}$	
$C_i = 5.3 \text{ nF}$	
$L_i = \text{negligibly small}$	
Module for analog feedback (AO)	
Terminals	+31 / -32
Temperature class T1 – T4	Temperature class T6
$U_i = 30 \text{ V}$	$U_i = 28 \text{ V}$
$I_i = 320 \text{ mA}$	$I_i = 320 \text{ mA}$
$P_i = 1 \text{ W}$	$P_i = 0.8 \text{ W}$
$C_i = 11.3 \text{ nF}$	
$L_i = 150 \text{ }\mu\text{H}$	
Module for universal input (UAI)	
Terminals	+21 / -22
Temperature class T1 – T4	Temperature class T6
$U_i = 30 \text{ V}$	$U_i = 28 \text{ V}$
$I_i = 320 \text{ mA}$	$I_i = 320 \text{ mA}$
$P_i = 1 \text{ W}$	$P_i = 0.8 \text{ W}$
$C_i = 11.3 \text{ nF}$	
$L_i = 150 \text{ }\mu\text{H}$	
Module for digital feedback (SW1 / SW2)	
Terminals	SW 1: +41 / -42 SW 2: +51 / -52
Temperature class T1 – T4	Temperature class T6
Per output:	Per output:
$U_i = 30 \text{ V}$	$U_i = 28 \text{ V}$
$P_i = 0.5 \text{ W}$	$P_i = 0.4 \text{ W}$
$I_i = 250 \text{ mA}$	
$C_i = 2.2 \text{ nF per output}$	
$L_i = \text{negligibly small}$	
Limit switch (Limit 1 / Limit 2)	
Limit monitor with proximity switch¹⁾	
Terminals	Limit 1: +51 / -52 Limit 2: +41 / -42
Temperature class T1 – T4	Temperature class T6
-25 ... 85 °C	-25°C ... 40°C

1) No IECEx approval

4 Product identification

4.1 Name plate

①	PositionMaster EDP300	Supply press: 0,14 ... 1 MP a	⑨
②	Prod.- Opt. Code: EDP300 A1.....-	Input: analog 4 - 20 mA	⑩
S3.....	Ambient temperature: -40°C ... 85°C	⑪
③	Serial No.: *****	Output: double acting	⑫
④	Special Request: -/-	Loss of electr. Supply: fall safe	⑬
⑤	HW-Rev.: 1.00 SW-Rev.: 1.00	IP65 HART®	⑭
⑥	DOM: 2011-W11		⑮
⑦	ZELM 11 ATEX 0456 X II 1G Ex ia IIC T6 resp. T4 Ga II 1D Ex ia IIIC T55°C resp. T100°C Da Ta = -40°C to +40°C resp. +85°C Electr. and pneum. data see certificate WARNING - potential electrostatic charging hazard - see instructions	Options:	⑯
	 0044	Slot1 Slot2	
		Analog feedback output <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	
⑧	ABB Automation Schillerstrasse 72 D - 32425 Minden Made in Germany	Digital feedback output <input type="checkbox"/> <input type="checkbox"/>	
		Universal analog input <input type="checkbox"/> <input type="checkbox"/>	
		Safety shut down <input type="checkbox"/> <input type="checkbox"/>	
		Pressure sensors <input type="checkbox"/>	
		Electr. limit switch <input checked="" type="checkbox"/>	
		Mech. limit switch, low <input type="checkbox"/>	
		Mech. limit switch, high <input type="checkbox"/>	
		Contactless pos. Sensor <input type="checkbox"/>	

M10154-01

Fig. 1: Name plate (example)

- 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 powered off ⑭ Communications protocol ⑮ IP rating ⑯ Options

i NOTICE

The name plates displayed are examples. The device identification plates affixed to the device can differ from this representation.

5 Transport

5.1 Inspection

Check the devices immediately after unpacking for possible damage that may have occurred from 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.

5.2 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.

Include the return form once it has been properly filled out (see appendix in operating instructions) 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 must be free from any hazardous materials (acids, alkalis, solvents, etc.).

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

6 Installation

6.1 Safety instructions

⚠ CAUTION

Risk of injury due to incorrect parameter values!

Incorrect parameter values 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, always reset the device to its factory settings.
- Never start Auto Adjust before restoring the factory settings.

i NOTICE

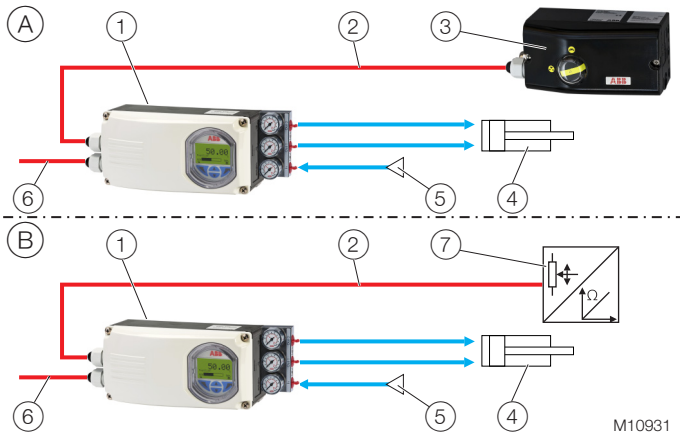
Before installation, check whether the positioner meets the control and safety requirements for the installation location (actuator or valve).

See the "Specifications" section on the data sheet.

Only qualified specialists who have been trained for these tasks are authorized to mount and adjust the unit, and to make 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.

6.2 External position sensors



M10931

Fig. 2: EDP300 with external position sensors

- ① EDP300 Control Unit ② Connection cable
③ EDP300 Remote Sensor ④ Actuator
⑤ Compressed air supply ⑥ Set point signal
⑦ Remote position sensor

i NOTICE

If the device is being operated on a cylinder, for reasons associated with linearity you should run the Auto Adjust function for rotary actuators (see chapter "Start Auto Adjust function" on page 31).

Ⓐ EDP300 control unit with EDP300 remote sensor

In this version, the components are supplied in two housings, which together form one harmonized unit.

The following points should be observed during installation:

- Housing 1 (EDP300 Control Unit) contains the electronics and pneumatics and is mounted separately from the actuator.
- Housing 2 (EDP300 Remote Sensor) contains the position sensor and is mounted on the linear and rotary actuator. Mechanical mounting is described in chapter "Mechanical mounting" on page 13.
- Electrical connections are described in chapter "Electrical connection to the EDP300 remote sensor" on page 19.

Ⓑ EDP300 Control Unit for remote position sensor

In this version the positioner is supplied without a position sensor.

The following points should be observed during installation:

- Housing 1 (EDP300 Control Unit) contains the electronics and pneumatics and is mounted separately from the actuator.
- The remote position sensor is mounted on the linear and rotary actuator. Follow the operating instructions for the remote position sensor for mechanical mounting!
- Electrical connections are described in chapter "Connection to device - EDP300 Control Unit for remote position sensor" on page 23.

6.3 Mechanical mounting

6.3.1 General information

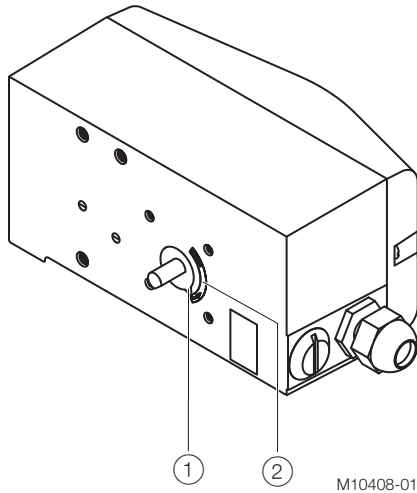


Fig. 3: Operating range

Arrow ① on the device feedback shaft (position feedback point) must move between the arrow marks ②.

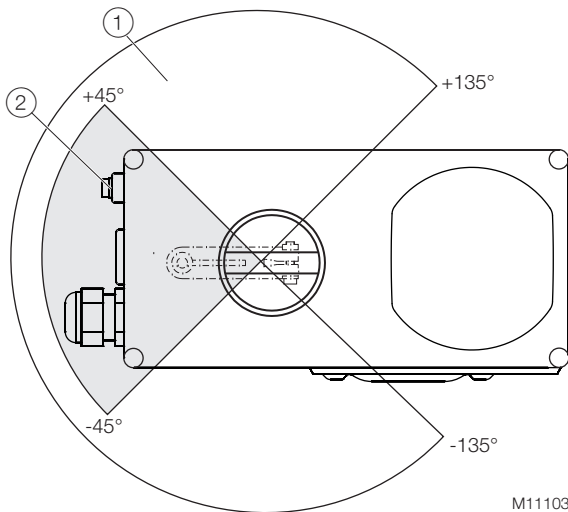


Fig. 4: Measuring and operating ranges of the positioner

① Measuring range ② Operating range

Operating range for linear actuators:

The operating range for linear actuators is $\pm 45^\circ$ symmetrically to the longitudinal axis. The usable span within the operating range is at least 25° (recommended figure 40°). The usable span does not necessarily need to run symmetrically to the longitudinal axis.

Operating range of rotary actuators:

The usable span is 90° , which must be entirely within the measuring range, but does not necessarily need to run symmetrically to the longitudinal axis.

i NOTICE

During installation make sure that the actuator travel or rotation angle for position feedback is implemented correctly.

6.3.2 Mounting on linear actuators

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

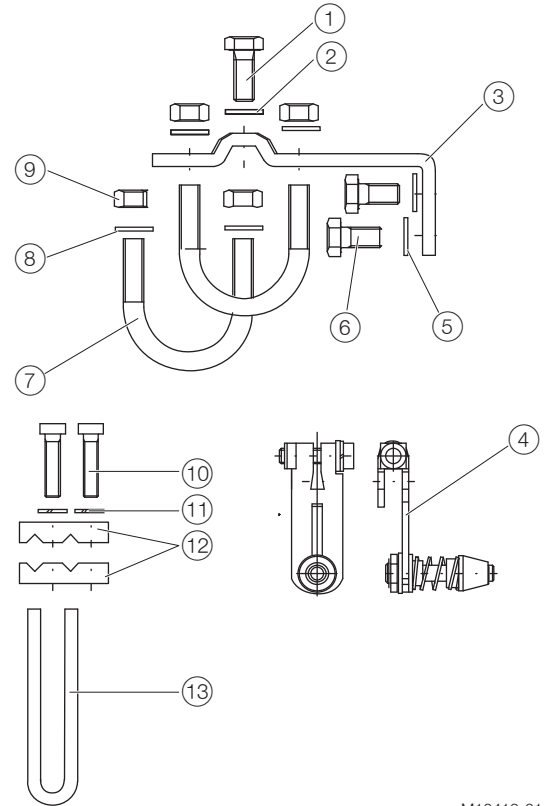


Fig. 5: Components of attachment kit

① Screw ② Washer ③ Attachment bracket ④ Level with follower pin (for travel 10 ... 35 mm (0.39 ... 1.8 inch) or 20 ... 100 mm (0.79 ... 3.94 inch) ⑤ Washers ⑥ Screws ⑦ U-Bolts ⑧ Washers ⑨ Nuts ⑩ Screws ⑪ Spring washers ⑫ Clamp plates ⑬ Follower guide

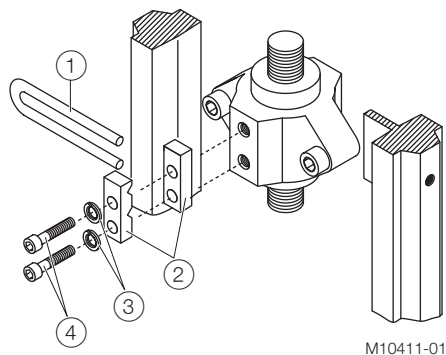


Fig. 6: Attaching a follower guide to the multi-turn actuator

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.

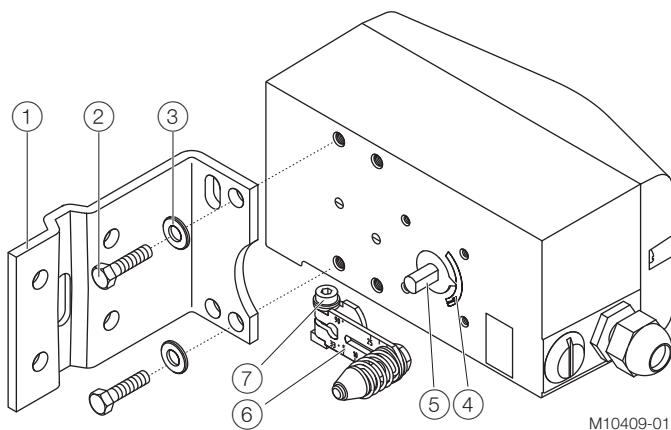


Fig. 7: Mount lever and bracket to positioner

1. Attach the lever (6) to the feedback shaft (5) of the positioner (can only be mounted in one position due to the cut shape of the feedback shaft).
2. Using the arrow marks (4), check whether the lever moves within the operating range (between the arrows).
3. Hand-tighten the screw (7) on the lever.
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 tap holes on the positioner must be used for the mount bracket.
5. Secure the mount bracket (1) with screws (2) and washers (3) using the relevant tap 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 operating range is symmetrical (lever moves between the arrow marks (4)).

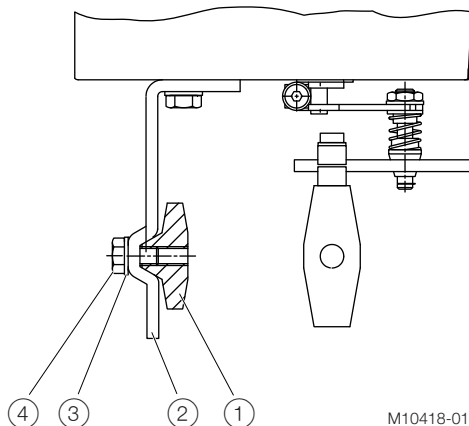


Fig. 8: Mounting on a cast iron yoke

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

or

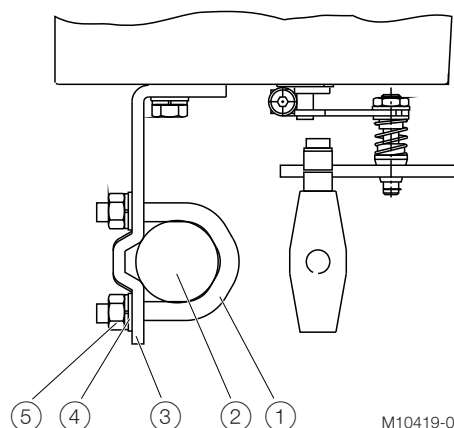


Fig. 9: Mounting on a columnar yoke

1. Hold the mount bracket (3) in the proper 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. Add the washers (4) and nuts (5).
4. Tighten the nuts so that they are hand-tight.

i NOTICE

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.

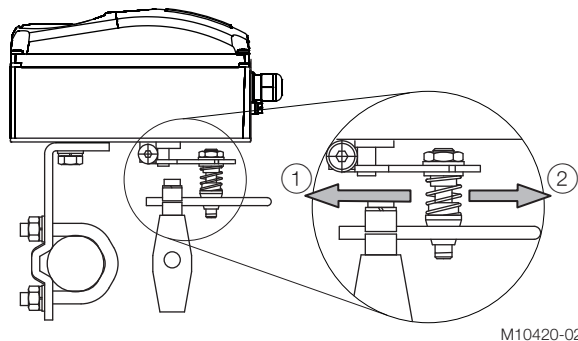


Fig. 10: Positioner linkage

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 position sensor. Moving the link point outwards reduces the rotation angle of the position 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 range: 25°

i NOTICE

After mounting, check whether the positioner is operating within the sensor range.

Position of actuator bolt

The actuator bolt for moving the potentiometer lever can be mounted permanently on the lever itself or on the valve stem. Depending on the mounting method, when the valve moves the actuator bolt performs either a circular or a linear movement with reference to the center of rotation of the potentiometer lever. Select the chosen bolt position in the HMI menu in order to ensure optimum linearization. The default setting is as follows:

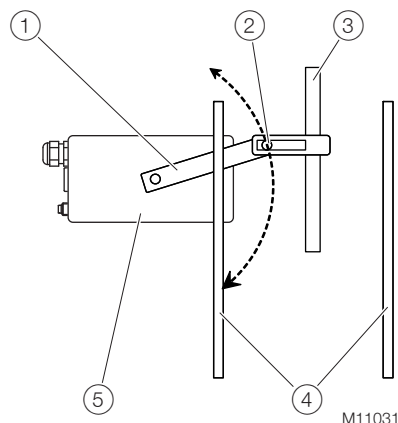


Fig. 11: Actuator bolt on lever (rear view)

① Potentiometer lever ② Actuator bolts ③ Valve spindle
④ Valve lamp ⑤ Positioner

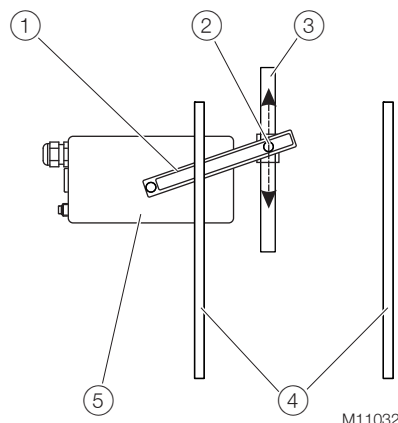
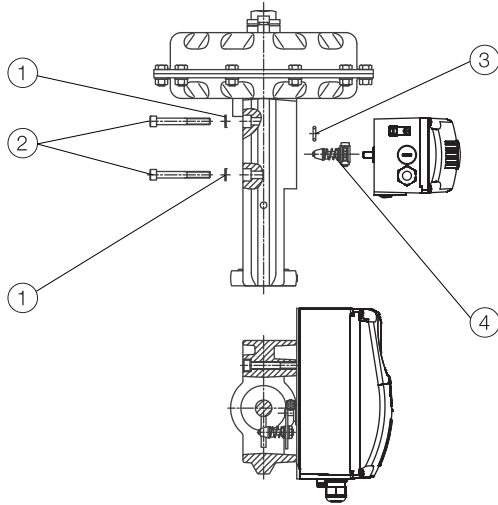


Fig. 12: Actuator bolt on valve (rear view)

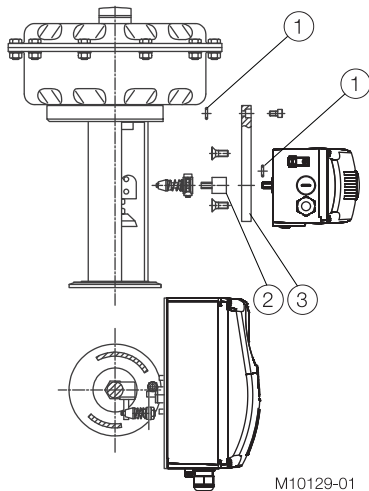
① Potentiometer lever ② Actuator bolts ③ Valve spindle
④ Vent lamp ⑤ Positioner

6.3.3 Mounting on control valves



M10128-01

Fig. 13: Integral mounting to control valves
 ① Washers ② Screws ③ O-ring ④ Lever

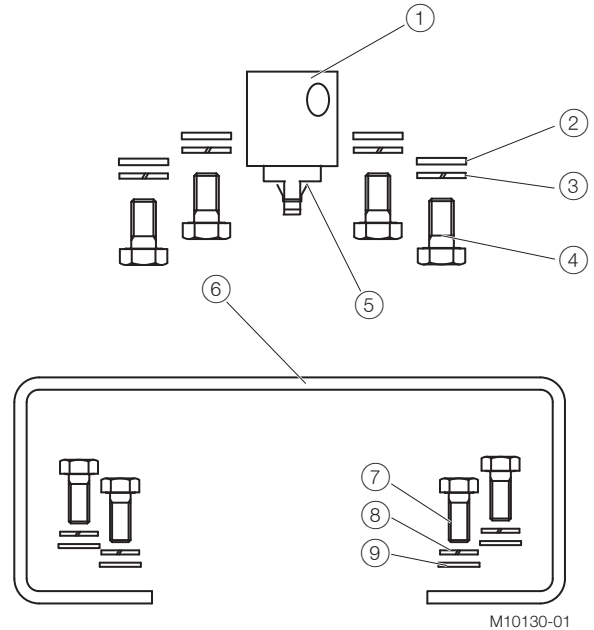


M10129-01

Fig. 14: Integral mounting on control valves using adapter plate
 ① O-Ring ② Adapter plate ③ Adapter

6.3.4 Mounting on part-turn actuators

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



M10130-01

Fig. 15: Components of attachment kit

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

Required tools:

- Wrench, size 8 / 10
- Allen key, size 3

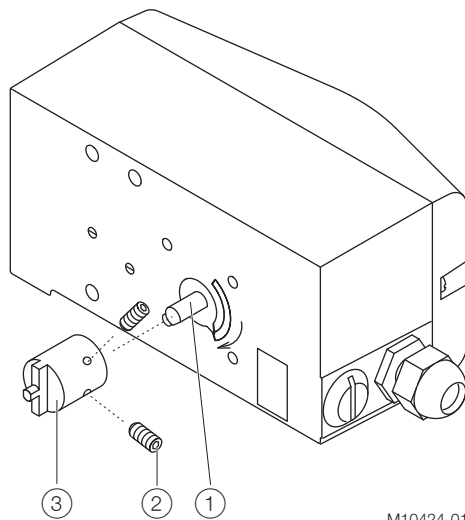


Fig. 16: Mounting the adapter on the positioner

1. Determine the mounting position (parallel to actuator or at 90° angle)
2. Calculate the rotational direction of the actuator (right or left).
3. Move the rotary actuator into the home position.
4. Pre-adjust feedback shaft.
To ensure the positioner will operate within the operating range (see chapter "General information" on page 13), 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. Place the adapter in the proper position on the feedback shaft and fasten with threaded pins (2). One of the threaded pins must be locked in place on the flat side of the feedback shaft.

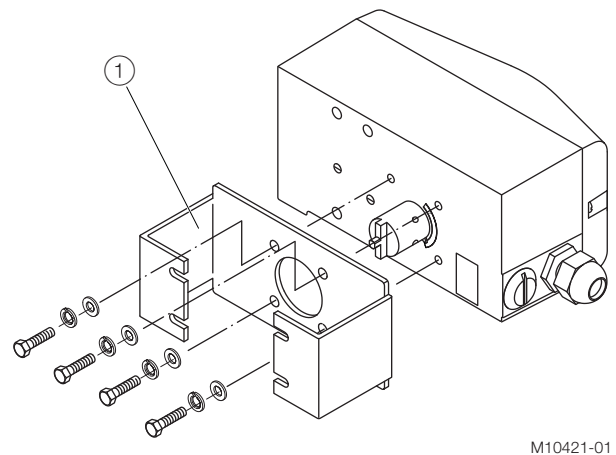


Fig. 17: Screwing the mounting bracket onto the positioner
 ① Mounting bracket

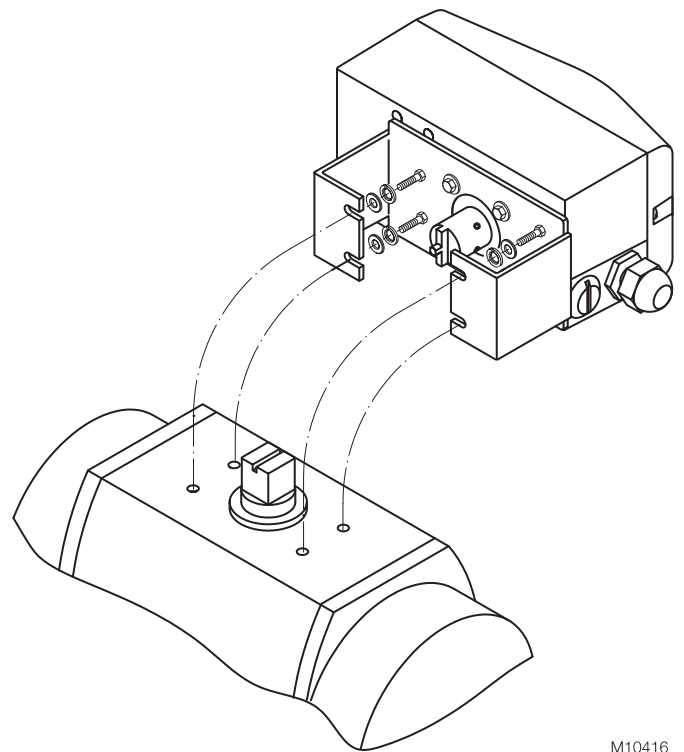


Fig. 18: Screwing the positioner onto the actuator

i NOTICE

After mounting, check whether the operating range for the actuator matches the measuring range for the positioner, see chapter "General information" on page 13.

6.4 Electrical connections

⚠ DANGER

Risk of explosion for devices with local communication interface (LCI)

A local communication interface (LCI) may not be operated in hazardous areas.

Never use the local communication interface (LCI) on the main board in a hazardous area.

⚠ WARNING

Risk of injury due to live parts!

When the housing is open, contact protection is not provided and EMC protection is limited.

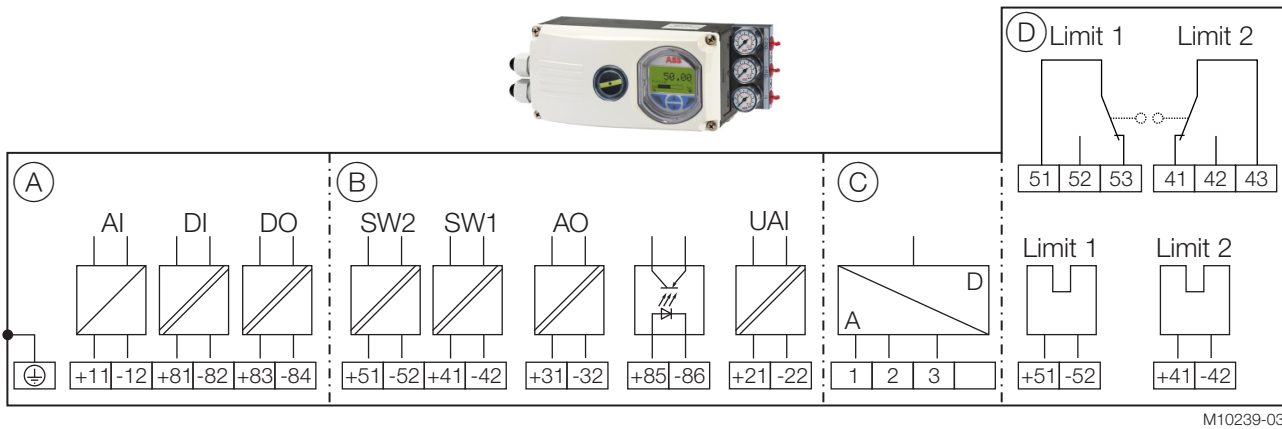
Before opening the housing, switch off the power supply.

The electrical connection may only be established by authorized specialist personnel.

The electrical connection information in this manual must be observed; otherwise, the IP rating 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.

6.4.1 Electrical connection to positioner / EDP300 Control Unit



M10239-03

Fig. 19: Electrical connection EDP300

(A) Basic device (B) Options (C) EDP Remote Sensor Connection / remote position sensor (only with EDP Control Unit version) (D) Options, limit monitor with proximity switch or microswitches (not in EDP300 Control Unit version)

Connections for inputs and outputs

Terminal	Function / comments
+11 / -12	Analog input AI or field bus connection
+81 / -82	Digital input DI
+83 / -84	Digital output DO2
+51 / -52	Limit alarm SW1 (Option module)
+41 / -42	Limit alarm SW2 (Option module)
+31 / -32	Analog feedback AO (Option module)
+85 / -86	Emergency shutdown module (Option module)
+21 / -22	Universal input UAI
1 / 2 / 3	EDP300 remote sensor (Only for options EDP300 Remote Sensor or EDP300 for remote position sensor)

Terminal	Function / comments
+51 / -52	Limit switch Limit 1 with proximity switch (optional)
+41 / -42	Limit switch Limit 2 with proximity switch (optional)
51 / 52 / 53	Limit switch Limit 1 with microswitch (optional)
41 / 42 / 43	Limit switch Limit 2 with microswitch (optional)

6.4.2 Electrical connection to the EDP300 remote sensor

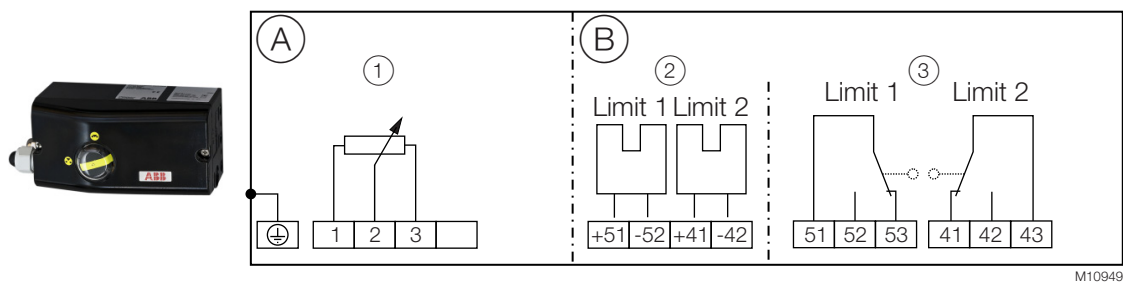


Fig. 20: Electrical connection to the EDP300 remote sensor

(A) Basic device (B) Options

(1) Position sensor (2) Limit monitor with proximity switches (option) (3) Limit monitor with microswitches (option)

Connections for inputs and outputs

Terminal	Function / comments
1 / 2 / 3	EDP300 Control Unit
+51 / -52	Limit switch Limit 1 with proximity switch (optional)
+41 / -42	Limit switch Limit 2 with proximity switch (optional)
51 / 52 / 53	Limit switch Limit 1 with microswitch (optional)
41 / 42 / 43	Limit switch Limit 2 with microswitch (optional)

6.4.3 Electrical data for inputs and outputs

NOTICE

When using the device in potentially explosive atmospheres, note the additional data in chapter "Use in potentially explosive atmospheres according to ATEX and IECEx" on page 5 and in chapter "Use in potentially explosive atmospheres in accordance with FM and CSA" on page 8 !

Set point signal analog (two-wire technology)

Terminals	+11 / -12
Nominal operating range	4 ... 20 mA
Limit values	Maximum: 50 mA (overload) Minimum: 3.6 mA
Starting at	≥ 3.8 mA
Load voltage	9.7 V at 20 mA
Impedance	485 Ω at 20 mA

Digital input DI

Terminals	+81 / -82
Supply voltage	24 V DC (12 ... 30 V DC)
Input "logical 0"	0 ... 5 V DC
Input "logical 1"	11 ... 30 V DC
Input Current	Maximum 4 mA

Digital output DO

Terminals	+83 / -84
Supply voltage	5 ... 30 V DC (Control circuit in accordance with DIN 19234/NAMUR)
Switching state logical	"0": Current > 0,35 mA ... < 1,2 mA "1": Current > 2,1 mA
Direction of action	standard logical "0" or logical "1" (configurable)

Option modules

Module for analog feedback AO¹⁾

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

Terminals	+31 / -32
Signal range	4 ... 20 mA (configurable split ranges)
Supply voltage, two-wire technology	24 V DC (10 ... 30 V DC)
Characteristic curve	rising or falling (configurable)
Characteristic curve deviation	< 1 %

Module for digital feedback SW1, SW2¹⁾

Two switches for digital position feedback (position adjustable within the range of 0 ... 100 %, ranges cannot overlap)

Terminals	+41 / -42, +51 / -52
Supply voltage	5 ... 11 V DC (Control circuit to DIN 19234/NAMUR)
Signal current	< 1,2 mA: Switching state logical "0" > 2,1 mA: Switching state logical "1"
Direction of action	standard logical "0" or logical "1" (configurable)

Module for universal input UAI¹⁾

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 up-scaling can be freely selected.

Terminals	+21 / -22
Nominal operating range	4 ... 20 mA
Load voltage	8 V at 20 mA
Impedance	400 Ω at 20 mA

Module for the emergency shutdown function¹⁾

When the 24 V DC signal is interrupted, the I/P 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, output 2 is additionally pressurized.

The emergency shutdown module works independently of the mother board, i.e., all information from the final control element is available in the control system at any time.

Terminals	+85 / -86
Supply voltage	24 V DC (20 ... 30 V DC) (electrically isolated from the input signal)
Safe position	Active at < 5 V DC

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

Limit switch

The limit switch can either be equipped with proximity switches or with potential-free microswitches.

Limit switch Limit 1 / Limit 2 with proximity switches

Two proximity switches for independent position signaling.		
Terminals	+41 / -42, +51 / -52	
Supply voltage	5 ... 11 V DC (Control circuit in accordance with DIN 19234/NAMUR)	
Output "logical 0"	< 1.2 mA	
Output "logical 1"	> 2.1 mA	
Switching point	Adjustable between 0 ... 100 %	
Direction of action	Metal tag in proximity switch	Metal tag outside proximity switch
Type SJ2-SN (NC; log. 1)	< 1.2 mA	> 2.1 mA

Limit switch Limit 1 / Limit 2 with 24 V - microswitches

Terminals	41 / 42 / 43, 51 / 52 / 53
Supply voltage	maximum 24 V AC/DC
Load rating	Maximum 2 A

6.4.4 Connection on the device

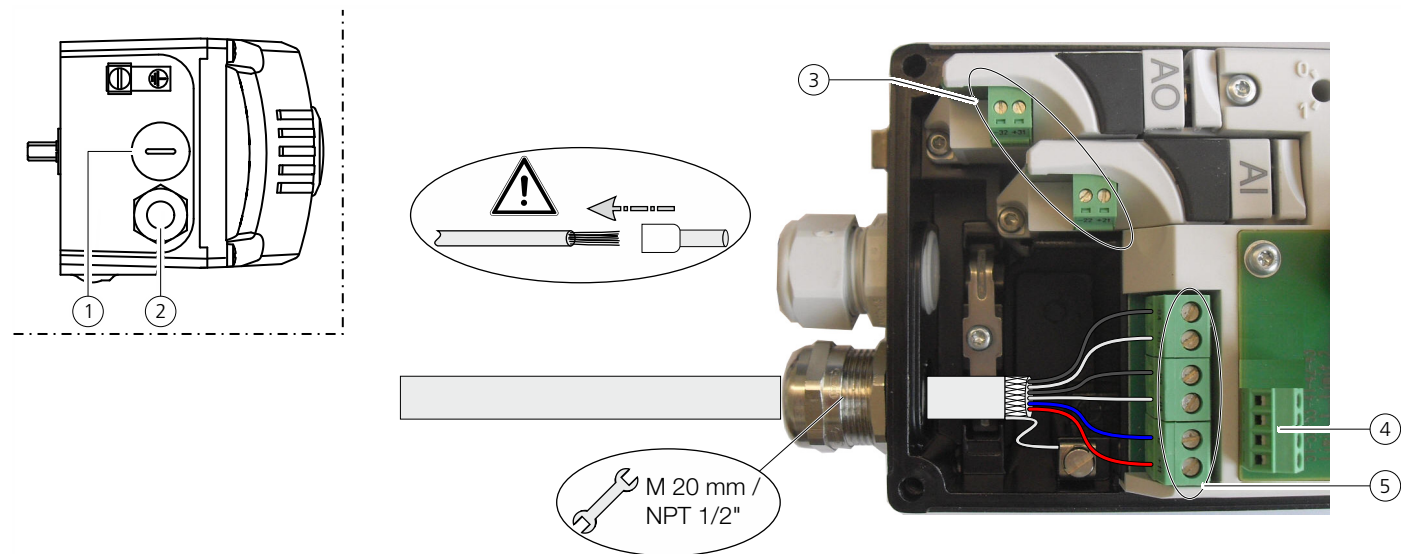


Fig. 21: Connection on device (example)

- ① Blind plug ② Cable gland ③ Terminals for options modules
④ Terminals attachment set for digital feedback ⑤ Terminals basic device

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 and the other has a blind plug.

i NOTICE

The connecting terminals are delivered closed and must be unscrewed before inserting the wire.

- Strip the wires to approximately 6 mm (0.24 inch).
- Connect the wires to the connecting terminals in line with the connection diagram.

Wire cross-sectional areas

Basic device

Electrical connections	
4 ... 20 mA input	Screw terminals max. 2.5 mm ² (AWG 14)
Options	Screw terminals max. 1.0 mm ² (AWG 18)

cross section

Rigid / flexible wires	0.14 ... 2.5 mm ² (AWG 26 ... AWG 14)
Flexible with wire end sleeve	0.25 ... 2.5 mm ² (AWG 23 ... AWG 14)
Flexible with wire end sleeve no plastic sleeve	0.25 ... 1.5 mm ² (AWG 23 ... AWG 17)
Flexible with wire end sleeve with plastic sleeve	0.14 ... 0.75 mm ² (AWG 26 ... AWG 20)

Multi-wire connection capacity (two wire with the same cross-section)

Rigid / flexible wires	0.14 ... 0.75 mm ² (AWG 26 ... AWG 20)
Flexible with wire end sleeve no plastic sleeve	0.25 ... 0.75 mm ² (AWG 23 ... AWG 20)
Flexible with wire end sleeve with plastic sleeve	0.5 ... 1.5 mm ² (AWG 21 ... AWG 17)

Option modules

Cross section

Rigid / flexible wires	0.14 ... 1.5 mm ² (AWG 26 ... AWG 17)
Flexible with wire end sleeve no plastic sleeve	0.25 ... 1.5 mm ² (AWG 23 ... AWG 17)
Flexible with wire end sleeve with plastic sleeve	0.25 ... 1.5 mm ² (AWG 23 ... AWG 17)

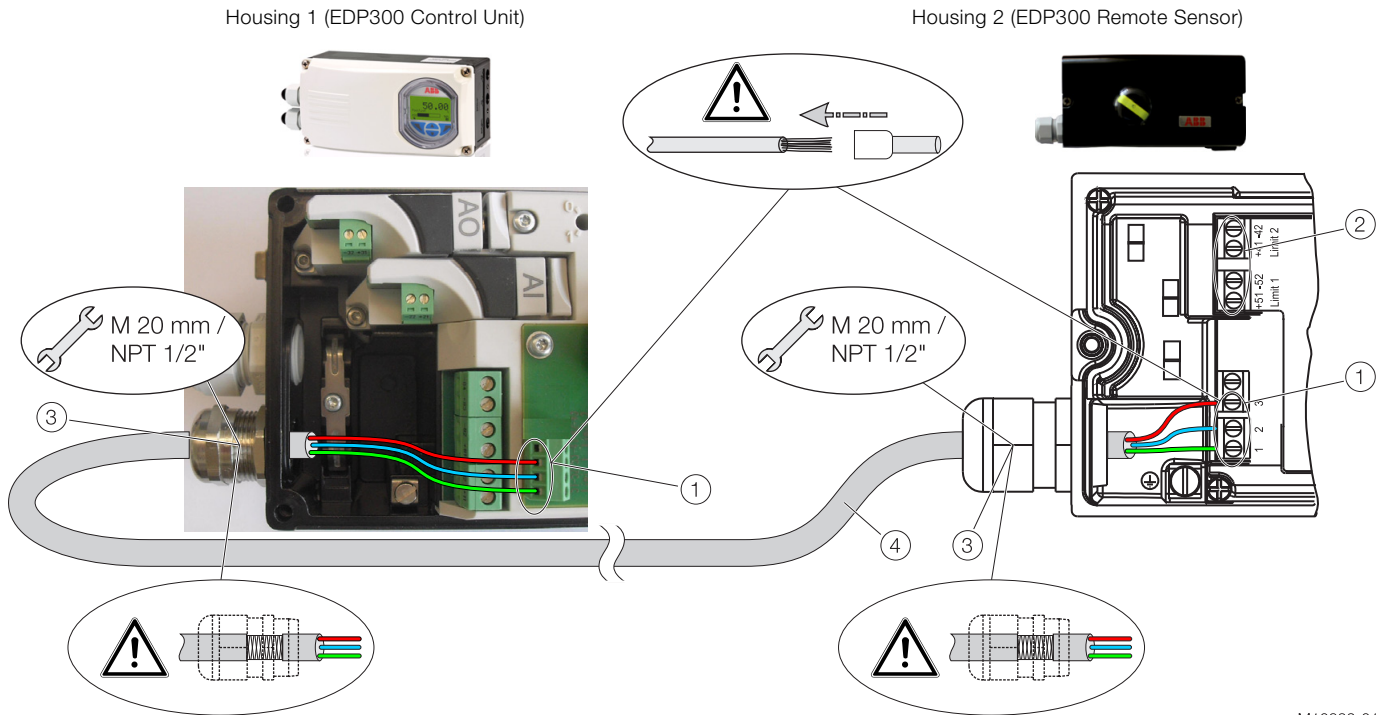
Multi-wire connection capacity (two wire with the same cross-section)

Rigid / flexible wires	0.14 ... 0.75 mm ² (AWG 26 ... AWG 20)
Flexible with wire end sleeve no plastic sleeve	0.25 ... 0.5 mm ² (AWG 23 ... AWG 22)
Flexible with wire end sleeve with plastic sleeve	0.5 ... 1 mm ² (AWG 21 ... AWG 18)

Limit switch with proximity switches or 24 V microswitches

Rigid wire	0.14 ... 1.5 mm ² (AWG 26 ... AWG 17)
Flexible wire	0.14 ... 1.0 mm ² (AWG 26 ... AWG 18)
Flexible with wire end sleeve no plastic sleeve	0.25 ... 0.5 mm ² (AWG 23 ... AWG 22)
Flexible with wire end sleeve with plastic sleeve	0.25 ... 0.5 mm ² (AWG 23 ... AWG 22)

6.4.5 Connection to device - EDP300 Control Unit with EDP300 Remote Sensor



M10832-01

Fig. 22: Connection EDP300 control unit with EDP300 remote sensor (example)

- (1) Terminals EDP300 Remote Sensor (2) Terminals attachment kit for digital feedback (3) EMC cable gland
(4) Shielded connection cable

In the case of the "EDP300 Control Unit with EDP300 Remote Sensor" design, the components are supplied in two housings, which together form one harmonized unit.

Housing 1 (EDP300 Control Unit) contains the electronics and pneumatics along with the following optional modules (where applicable):

- Analog position feedback
- Digital position feedback
- Emergency shutdown module
- Universal input

Housing 2 (EDP300 Remote Sensor) contains the position sensor and is suitable for mounting on linear or rotary actuators.

If necessary, the following options can be installed if required:

- Optical position indication
- Mechanical feedback contacts designed as proximity switches or microswitches.

The housings of the EDP300 Control Unit and the EDP300 Remote Sensor are available in stainless steel as an option.

Connect the positioner (EDP300 Control Unit, housing 1) and remote position sensor (EDP300 Remote Sensor, housing 2), while following the instructions below:

- The EDP300 Remote Sensor and the EDP300 Control Unit are adjusted to each other. Ensure that only devices with the same serial number are connected.
- A shielded three-wire cable with a maximum length of 10 m (33 ft) must be used for connection purposes.
- Route the cable into the terminal compartment through the EMC cable glands. Ensure that the shielding is secured correctly in the EMC cable glands.
- Connect the cables in accordance with the electrical connections and tighten the screws of the terminals so that they are hand-tight.
- Use wire end ferrules when connecting.
- The electrical connections of the EDP300 Control Unit and the optional modules are described in chapter "Electrical connection to positioner / EDP300 Control Unit" on page 18.
- If the EDP300 Control Unit is fastened so that it is non-conductive, the housing must be grounded (EDP300 Control Unit and EDP300 Remote Sensor housing with the same electrical potential); otherwise control deviations could occur with regard to analog position feedback.
- In the EDP300 Remote Sensor in IP rating IP 67, pre-tighten the cover screws by applying approx. 50 Ncm (0.44 lbf-in) and then tighten by applying 200 Ncm (1.77 lbf-in).
- The pneumatic outputs must be connected to the actuator using pneumatic lines with a minimum diameter of 6 mm.

6.4.6 Connection to device - EDP300 Control Unit for remote position sensor

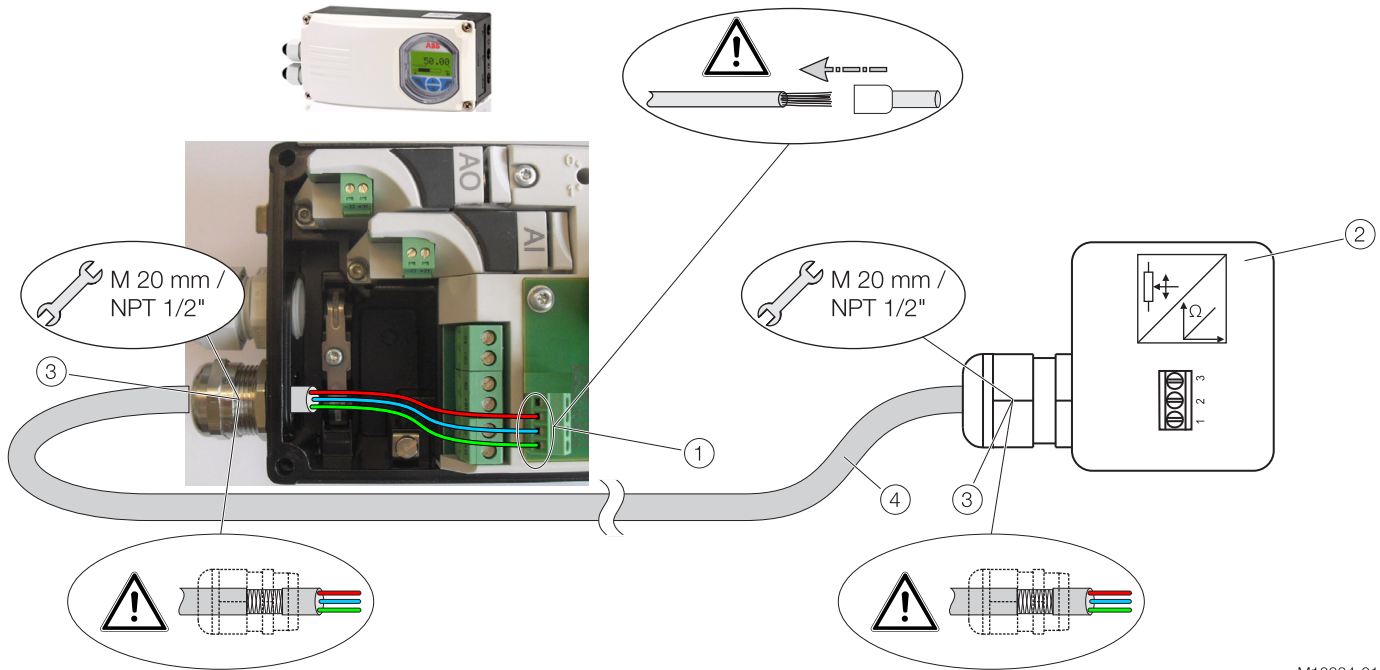


Fig. 23: Connection of EDP300 Control Unit with remote position sensor (example)

① Terminals for remote position sensor ② Remote position sensor ③ EMC cable gland ④ Shielded connection cable

- With the EDP300 designed for remote position sensors, the positioner is supplied without a position sensor.
- The EDP300 Control Unit contains the electronics and pneumatics along with the following options (where applicable):
 - Analog position feedback
 - Digital position feedback
 - Emergency shutdown module
 - Universal input

Any position sensor (4 ... 80 kΩ) may be connected.

Connect the positioner (EDP300 Control Unit) and remote position sensor while observing the following instructions:

- A shielded three-wire cable with a maximum length of 10 m (33 ft) must be used for connection purposes.
- Route the cable into the terminal compartment through the EMC cable glands. Ensure that the shielding is secured correctly in the EMC cable glands.
- Connect the cables in accordance with the electrical connections and tighten the screws of the terminals so that they are hand-tight.
- The electrical connections of the EDP300 Control Unit and the optional modules are described in chapter "Electrical connection to positioner / EDP300 Control Unit" on page 18.
- Use wire end ferrules when connecting.
- If the EDP300 Control Unit is attached so that it is non-conductive, the housing must be grounded (EDP300 Control Unit and remote position sensor with the same electrical potential); otherwise control deviations could occur with regard to analog position feedback.
- If the device is being operated on a cylinder, for reasons associated with linearity you should run the Auto Adjust function for rotary actuators
- The pneumatic outputs must be connected to the actuator using pneumatic lines with a minimum diameter of 6 mm.

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6.5 Installing the option modules

i NOTICE

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.

i NOTICE

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

i NOTICE

If you are using the emergency shutdown module, the module must be supplied with 24 V DC at terminals +85 / -86. Otherwise, the positioner will not be able to function pneumatically (device in pneumatic safety position).

i NOTICE

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.-

6.5.1 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.

6.5.2 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.

6.5.3 Installing the pressure option

⚠ CAUTION

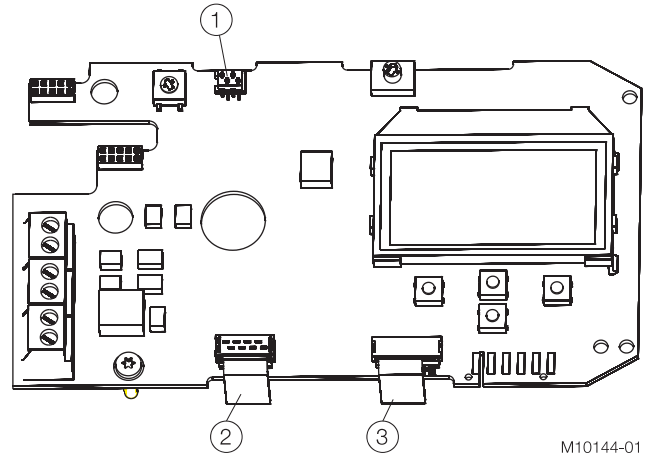
Risk of injury

Risk of injuries due to flying components as well as significant noise emissions.

Prior to disassembly, all connected compressed air lines must be depressurized.

i NOTICE

- The supply voltage must be switched off before the pressure option is installed.
- The bond wires for the pressure option must not be touched. Doing so will cause damage to the option module.
- Before using the device, an IEC-compliant high-voltage test must be performed.



M10144-01

Fig. 24: 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 indication and screw off the shaft extension (as well as the mechanical alarm signalling unit if applicable).
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. 24).
12. Attach the plug connectors for the pressure option (3) to the printed circuit board (see Fig. 24).
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.

6.6 Setting the option modules

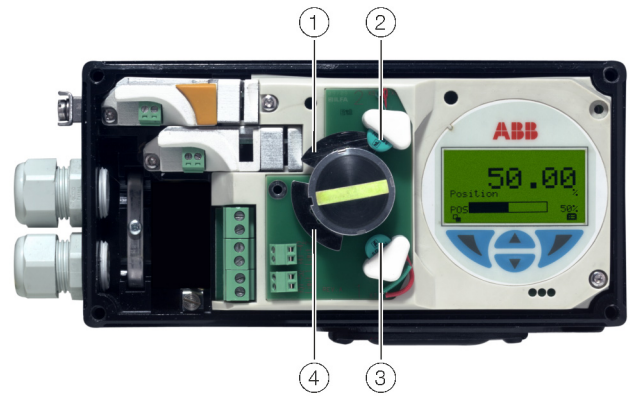
6.6.1 Setting the mechanical position indicator

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

i NOTICE

The labels are located on the inside of the housing cover.

6.6.2 Setting the mechanical binary feedback with proximity switches



M11020

Fig. 25: Limit switch with proximity switch

- ① Upper metal tag ② Proximity switch Limit 2
③ Proximity switch Limit 1 ④ Lower metal tag

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 the 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 onto the housing.
4. Tighten the screws so that they are hand-tight.

6.6.3 Setting the mechanical binary feedback with 24 V microswitches

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 retainer 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 retainer 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.

6.7 Pneumatic connections

i NOTICE

The positioner must only be supplied with instrument air that is free of oil, water, and dust (in gas configuration with dried natural gas).

The purity and oil content must meet the requirements of Class 3 according to DIN/ISO 8573-1.

i NOTICE

Damage to components!

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.

i NOTICE

Damage to components!

Pressure above 10 bar (145 psi) can damage the positioner or actuator.

Provisions must be made (e.g., use of a pressure regulator) to ensure that the pressure does not rise above 10 bar (145 psi), even in the event of a fault.

6.7.1 Information on double acting actuators with spring-return mechanism

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

This may damage the positioner or adversely affect control of the actuator.

To eliminate the possibility of this occurring, it is recommended

to install a pressure compensation valve between the springless chamber and the supply air for these types of applications. It enables the increased pressure to be transferred back to the air inlet line.

The opening pressure of the check valve should be < 250 mbar (< 3.6 psi).

6.7.2 Connection on the device

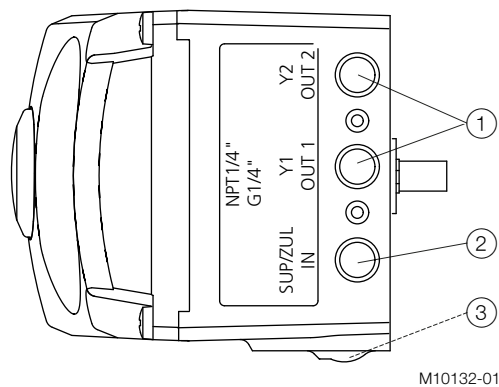


Fig. 26: Pneumatic connections
① Pneumatic outputs ② Supply air
③ Filter screw (on underside of housing)

Marking	Pipe connection
SUP / ZUL IN	Supply air, pressure 1.4 ... 10 bar (20 ... 145 psi)
Y1 / OUT1	Output pressure for actuator
Y2 / OUT2	Output pressure for actuator (2nd connection with double-acting actuator)

- Join the pipe connections according to the designation, observing the following points:
- 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).

6.7.3 Air supply

Instrument air ¹⁾	
Purity	Maximum particle size: 5 µm Maximum particle density: 5 mg/m³
Oil content	Maximum concentration 1 mg/m³
Pressure dew point	10 K below operating temperature
Supply pressure	1.4 ... 10 bar (20 ... 145 psi)
Air consumption ²⁾	< 0.03 kg/h / 0.015 scfm

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

Compressed air output	
Range	0 ... 10 bar (0 ... 145 psi)
Air capacity	Standard: 40 kg/h = 31 Nm³/h = 20 scfm
	Optional: 50 kg/h (40 Nm³/h / 23 scfm)
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 %

7 Commissioning

7.1 Safety instructions

i NOTICE

The electrical power supply and supply air pressure data indicated on the name plate must be complied with during commissioning.

Before switching on the device, make sure that your installation complies with the environmental conditions listed in the chapter "Technical Data" 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.

7.2 Checks prior to commissioning

Air pressure in the compressed air connecting line:

1.4 ... 10 bar (20 ... 145 psi)

Current input active:

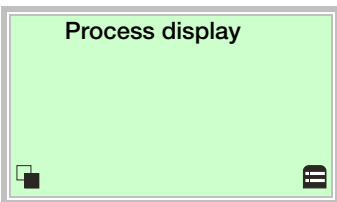
4 ... 20 mA

7.3 Mechanical mounting checks

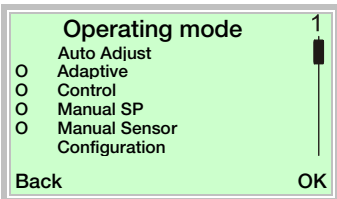
During commissioning, the mechanical mounting on the linear and rotary actuators is checked. For this purpose, the actuator is first moved into the end positions and Auto Adjust is then carried out.

With large actuators, it can occur that the time for automatic adjustment is significantly than in smaller actuators.

7.3.1 Moving to end positions following completion of Auto Adjust



1. Use to switch to the Operating Mode menu.



2. Use or to select the "Manual Sensor" operating mode.
3. Use and to move to the relevant end positions.

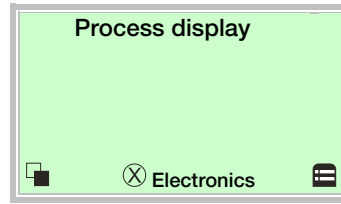


Check the end positions. The angle of rotation is displayed in degrees.

Recommended range:

- between -30 ... 30° for linear actuators
- between -45 ... 45° for rotary actuators

7.3.2 Moving to end positions with a new device



Use and to move to the relevant end positions.



Check the end positions. The angle of rotation is displayed in degrees.

Recommended range:

- between -30 ... 30° for linear actuators
- between -45 ... 45° for rotary actuators

Auto Adjust must then be performed.

"Start Auto Adjust function" on page 31

8 Operation

8.1 Safety instructions

⚠ CAUTION

Risk of injury due to incorrect parameter values!

Incorrect parameter values 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, always reset the device to its factory settings.
- Never start Auto Adjust before restoring the factory settings.

If there is a chance that safe operation is no longer possible, take the device out of operation and secure it against unintended startup.

8.2 Parameterization of the device

The LCD display features operating buttons which enable the device to be operated with the housing cover open.

8.2.1 Menu navigation

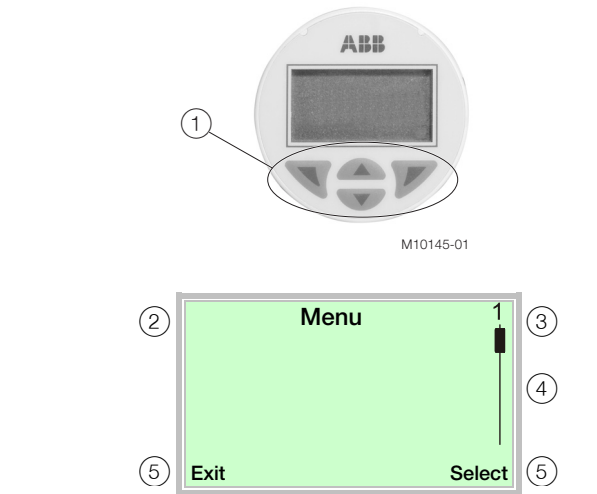


Fig. 27: LCD display

① Operating buttons for menu navigation
② Menu name display ③ Menu number display
④ Marking to indicate the relative position within the menu
⑤ Display of the current function of the buttons and

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 ⑤ is shown on the LCD display.

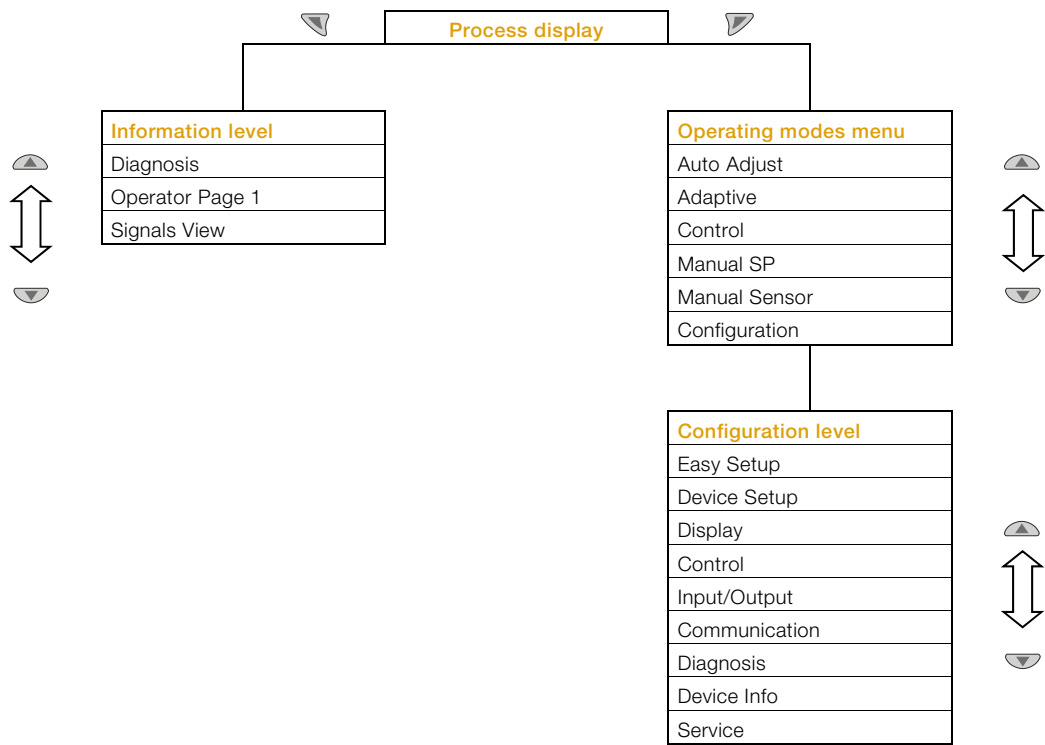
Operating button functions

	Meaning
Exit	Exit menu
Back	Go back one submenu
Cancel	Cancel 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

8.3 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 Auto Adjust 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.

i NOTICE

Property damage

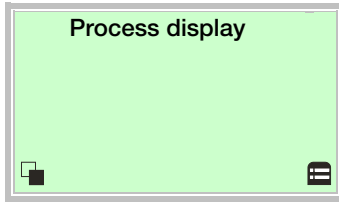
During external configuration via a PC, the positioner no longer responds to the set point current. This may lead to process failures. Prior to external configuration, always move the actuator to the safety position and activate manual adjustment.

i NOTICE

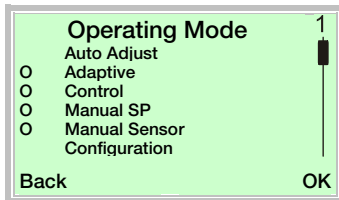
For detailed information on the parameterization of the device, consult the associated operating instructions and configuration and parameterization instructions.

8.3.1 Start Auto Adjust function

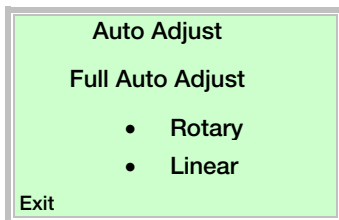
The Auto Adjust function of the device can be configured and started in the "Operating Mode" menu.



1. Use to switch to the Operating Mode menu.



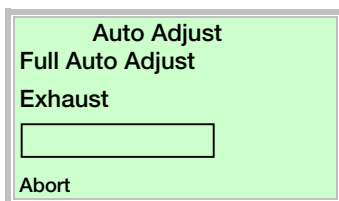
2. Use or to select the "Auto Adjust" operating mode.
3. Confirm the selection with . Press and hold down the control button for at least 4 seconds (wait for the time to count down on the top left of the display).



1. Use or to select the "Actuator type". Select "Rotary" for rotary actuators. Select "Linear" for linear actuators.

i NOTICE

"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.

i NOTICE

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.

9 Maintenance

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

i NOTICE

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.

i NOTICE

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.

i NOTICE

For detailed information on the maintenance of the device, consult the associated operating instructions (OI)!

10 Supplemental specifications

10.1 Actuator travel

Rotation angle

Used range	25 ... 270° for rotary actuator 25 ... 60° for linear actuator
Actuator travel limit	Min. and max. limits, freely configurable in range 0 ... 100 % Actuator travel (min. range > 20%)
Actuator 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)

10.2 Housing

Material / Degree of protection	
Aluminum with ≤ 0.1% copper	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 (5.29 lb)
Stainless steel 1.4404 (316L)	5.5 kg (12.13 lb)

10.2.1 Mounting orientation

Any

10.3 Transmission data and influences

Output Y1	
Increasing set point signal	0 ... 100 % Increasing pressure at output
Decreasing set point signal	0 ... 100 % Decreasing pressure at output
Action (set point signal)	
Increasing set point	4 ... 20 mA = actuator position 0 ... 100 %
Decreasing set point	20 ... 4 mA = actuator position 0 ... 100 %

Characteristic curve (actuator travel = f {set point 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 (AD-conversion)	> 16,000 steps
Sampling frequency	20 ms
Ambient temperature effect	< 0.5 % for each 10 K
Influence of vibration	< 1 % to 10 g and 80 Hz

1) Freely configurable with 20 reference points

10.3.1 Seismic vibration

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

10.3.2 Influence of mounting orientation

Not measurable.

10.3.3 Noise emissions

Max. 100 db (A)

Noise-reduced version max. 85 db (A)

10.4 Ambient conditions

Ambient temperature range	
During operation, storage, and transport	-40 ... 85 °C (-40 ... 185 °F) -40 ... 100 °C (-40 ... 212 °F) ¹⁾

1) Increased temperature range only with EDP300 Remote Sensor.

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

11 Additional documents

i NOTICE

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

Trademarks

® HART is a registered trademark of FieldComm Group, Austin, Texas, USA

12 Appendix

12.1 Return form

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	<input type="checkbox"/>	Corrosive / irritating	<input type="checkbox"/>	Combustible (highly / extremely combustible)	<input type="checkbox"/>
Toxic	<input type="checkbox"/>	Explosiv	<input type="checkbox"/>	Other toxic substances	<input type="checkbox"/>
Radioactive	<input type="checkbox"/>				

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
-----------------	-----------------------------

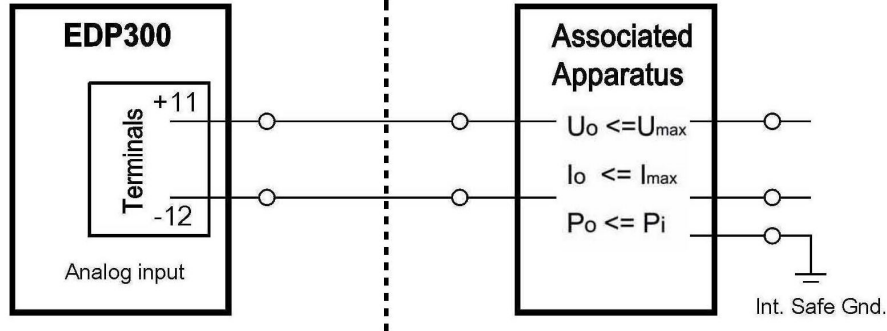
Hazardous area

IS, Cl. I, Div 1, Gr. A, B, C, D, T4 or T6
 IS, Cl. II, Div. 1, Gr. E, F, G, T4 or T6
 IS, Cl. III, Div. 1, T4 or T6
 Class I Zone 0, Ex / AEx ia IIC, T4 or T6 (Ex only for CSA)
 NI, Cl. I, Div. 2, Gr. A, B, C, D, T4 or T6
 NI, Cl. II, Div. 2, Gr. E, F, G, T4 or T6
 NI, Cl. III, Div. 2, T4 or T6
 Class I Zone 2, IIC, T4 or T6 (only for FM)
 Class I Zone 2, Ex / AEx nA IIC, T4 or T6 (only for CSA)
 Enclosure Type 4X

Nonhazardous area

Model EDP300F1 *****

*****aa*****



	T1 - T4	T6
U_{max}	30 V	28 V
I_{max}	320 mA	320 mA
P_i	1,1 W	0,8 W
C_i	6,5 nF	
	With pressure option 8,8nF	
L_i	negligible small	

	T1 - T4	T6
T_a	(-40...85) °C	(-40...40) °C

INTRINSICALLY SAFE, input rated 30V dc max, 4–20mA

1. The Intrinsic Safety Entity concept allows the interconnection of two Intrinsically safe devices Approved by FM/CSA Approvals with entity parameters not specifically examined in combination as a system when: U_o or V_o or $V_t < V_{max}$, I_o or I_{sc} or $I_t < I_{max}$, C_a or $C_o > C_i + C_{cable}$, L_a or $L_o > L_i + L_{cable}$, $P_o < P_i$
2. A dust tight seal must be used at the conduit entry when the positioner is used in a Class II & III Location.
3. Control equipment connected to the Associated Apparatus must not use or generate more than 250 Vrms or Vdc.
4. Installation should be in accordance with ANSI/ISA RP12.06.01 "Installation of Intrinsically Safe System for Hazardous (Classified) Locations" and the National Electrical Code® (ANSI/NFPA 70) Sections 504 and 505.
5. The configuration of associated Apparatus must be Factory Mutual Research /Canadian Standards Association Approved under the associated concept.
6. Associated Apparatus manufacturer's installation drawing must be followed when installing this equipment.
7. No revision to drawing without prior Factory Mutual Research Approval/Canadian Standards Association.
8. WARNING- EXPLOSION HAZARD – SUBSTITUTION OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY.
9. WARNING- TO PREVENT IGNITION OF FLAMMABLE OR COMBUSTIBLE ATMOSPHERES, DISCONNECT POWER BEFORE SERVICING.
10. Preventing electrostatic charging
 Due to the possibility of impermissible electrostatic charging of the housing occurring, the effects of high-voltage

				Date	Name	Title	Scale
				Drawn	15.03.11	Kresse	Control Drawing
				Appr..	28.09.11	Schaeff	
5		19.11.14	Lasar	Std.			EDP 300
4		05.04.13	Lasar				
3		20.03.12	Lasar			Draw.-No. (Part-No.)	Sheet
2		16.01.12	Lasar			901305	
1		28.9.11	Schaeff				1 / 6
Rev.	Change	Date	Name			Supersedes Dwg.	Part. Class


sources on the equipment must be prevented. Electrostatic charging can also occur if the device is wiped with a dry cloth or if large amounts of dust flow around the device in dusty environments. To prevent charging of this type from occurring, the device may only be cleaned using a damp cloth. Dust flowing round the device should be prevented by installing a flow restrictor or partition.

11. If the PositionMaster EDP300 is used according to temperature class T6, before the pressure supply is fully switched on, the pneumatic unit shall be operated with a maximum pressure of 1,4 bar for so long until no more explosive mixture is present, but at least 5 minutes. During this operation the EDP300 is to be fully loaded and vented for several-times.
12. The usage of the PositionMaster with natural gas is only permitted in type of protection "Intrinsic Safe".
13. If the PositionMaster is used with natural gas, the venting of the PositionMaster has to be routed safely to outside the hazardous area.
14. If the PositionMaster uses natural gas instead of compressed air, the maximum ambient temperature is 60 °C.
15. Limit switches are not permitted for use in this product.
16. Max. pressure of the attached pressure supply is 174 psi (12 bar absolute).
17. The customer must select an appropriate cable gland, complied the requirement of Type 4X (NEMA 250).

NON-INCENDIVE, CLASS I, DIVISION 2, GROUPS A, B, C, D; CLASS II DIVISION 2 GROUPS E, F, G; CLASS III T4 or T6

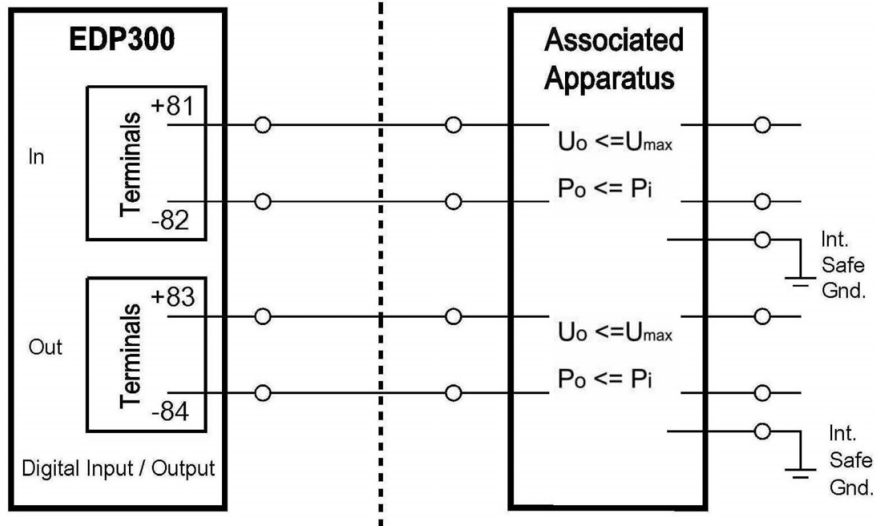
Input rated 30V dc max, 4-20mA

1. Nonincendive wiring concept: The Nonincendive wiring concept allows the interconnection of devices with Nonincendive wiring parameters: Vmax, Imax, Pmax see Table.
2. Nonincendive wiring parameters: Uo or Voc or Vt < Vmax, Io or Isc or It < Imax, Ca or Co > Ci + Ccable, La or Lo > Li + Lcable, Po < Pi
3. The configuration of Associated Nonincendive Field Wiring Apparatus must be FM/CSA Approved under Nonincendive wiring concept.
2. Associated Nonincendive Field Wiring Apparatus manufacturer's installation drawing must be followed when installing this equipment.
3. WARNING- EXPLOSION HAZARD - DO NOT DISCONNECT EQUIPMENT UNLESS POWER HAS BEEN SWITCHED OFF OR AREA IS KNOWN TO BE NON-HAZARDOUS.
4. WARNING- EXPLOSION HAZARD - SUBSTITUTION OF COMPONENTS MAY IMPAIR SUITABILITY FOR CLASS I, DIVISION 2.
5. Preventing electrostatic charging
Due to the possibility of impermissible electrostatic charging of the housing occurring, the effects of high-voltage sources on the equipment must be prevented. Electrostatic charging can also occur if the device is wiped with a dry cloth or if large amounts of dust flow around the device in dusty environments. To prevent charging of this type from occurring, the device may only be cleaned using a damp cloth. Dust flowing round the device should be prevented by installing a flow restrictor or partition.
6. If the PositionMaster EDP300 is used according to temperature class T6, before the pressure supply is fully switched on, the pneumatic unit shall be operated with a maximum pressure of 1,4 bar for so long until no more explosive mixture is present, but at least 5 minutes. During this operation the EDP300 is to be fully loaded and vented for several-times.
7. This product is not permitted for use with natural gas.
8. With optional Limit Switches (aa, see coding)
aa = F2, Proximity switches (Normally Closed) Type SJ2-SN
aa = F3, Proximity switches (Normally Open) Type SJ2-S1N
aa = blank, without Limit Switches
9. If ordering option F3 is used the lower ambient temperature is reduced to -25 °C.
10. Max. pressure of the attached pressure supply is 174 psi (12 bar absolute).
11. The customer must select an appropriate cable gland, complied the requirement of Type 4X (NEMA 250).

				Date	Name	Title	Scale
				Drawn	15.03.11	Kresse	Control Drawing
				Appr..	28.09.11	Schaeff	
5		19.11.14	Lasar	Std.			
4		05.04.13	Lasar			EDP 300	Sheet
3		20.03.12	Lasar			Draw.-No. (Part-No.)	
2		16.01.12	Lasar			901305	
1		28.9.11	Schaeff				2 / 6
Rev.	Change	Date	Name			Supersedes Dwg.	Part. Class

Hazardous area

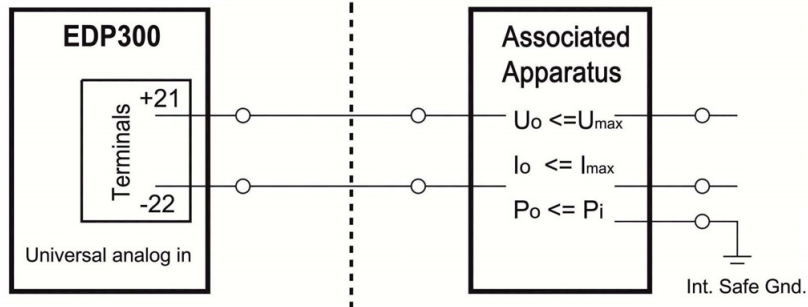
Nonhazardous area



	T1 - T4	T6
U_{max}	30 V	28 V
P_i	0,5 W	0,4 W
C_i	4,2 nF	
L_i	negligible small	


	T1 - T4	T6
T_a	(-40...85) °C	(-40...40) °C

Ordering option A3 or B3



	T1 - T4	T6
U_{max}	30 V	28 V
I_{max}	320 mA	320 mA
P_i	1,0 W	0,8 W
C_i	11,3 nF	
L_i	150µH	

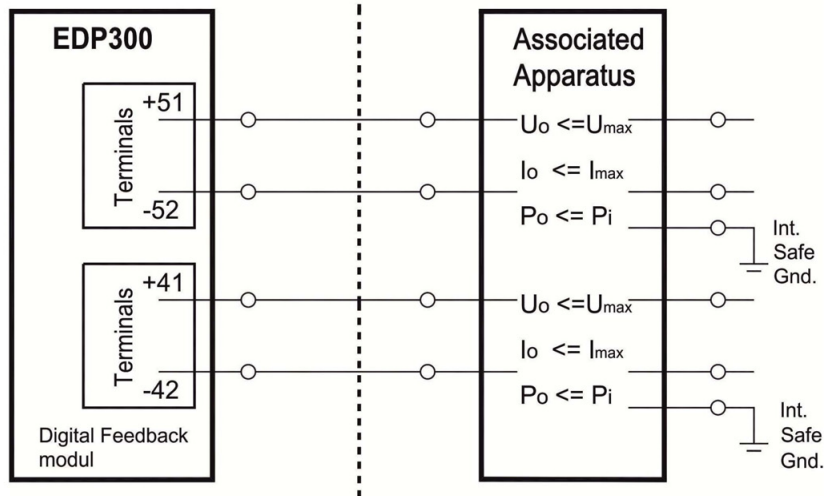
	T1 - T4	T6
T_a	(-40...85) °C	(-40...40) °C

				Date	Name	Title	Scale
				Drawn	15.03.11	Kresse	Control Drawing
				Appr..	28.09.11	Schaeff	
				Std.			
5		19.11.14	Lasar	 Automation Products		EDP 300	Sheet
4		05.04.13	Lasar			Draw.-No. (Part-No.)	
3		20.03.12	Lasar			901305	
2		16.01.12	Lasar				3 / 6
1		28.9.11	Schaeff				
Rev.	Change	Date	Name			Supersedes Dwg.	Part. Class

Hazardous area

Nonhazardous area

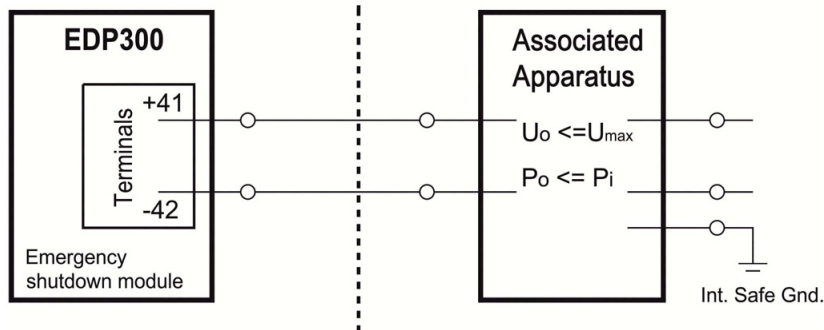
Ordering option A2 or B2



	T1 - T4	T6
U_{max}	30 V	28 V
P_i	0,5 W	0,4 W
C_i	2,2 nF each output	
L_i	negligible small	

	T1 - T4	T6
T_a	(-40...85) °C	(-40...40) °C

Ordering option B4



	T1 - T4	T6
U_{max}	30 V	30 V
P_i	1 W	1 W
C_i	5,3 nF	
L_i	negligible small	

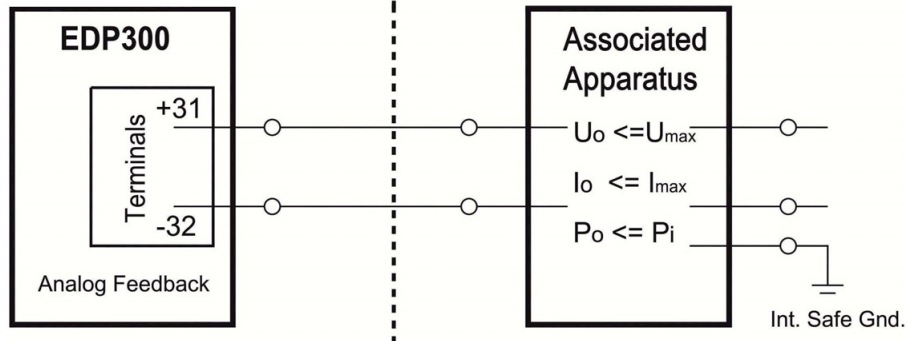
	T1 - T4	T6
T_a	(-40...85) °C	(-40...40) °C

Rev.	Change	Date	Name	Date	Name	Title	Scale
				Drawn	15.03.11	Kresse	Control Drawing
				Appr..	28.09.11	Schaeff	
5		19.11.14	Lasar	Std.			
4		05.04.13	Lasar	 Automation Products		EDP 300	Sheet
3		20.03.12	Lasar			Draw.-No. (Part-No.)	
2		16.01.12	Lasar			901305	
1		28.9.11	Schaeff				4 / 6
Rev.	Change	Date	Name			Supersedes Dwg.	Part. Class

Hazardous area

Nonhazardous area

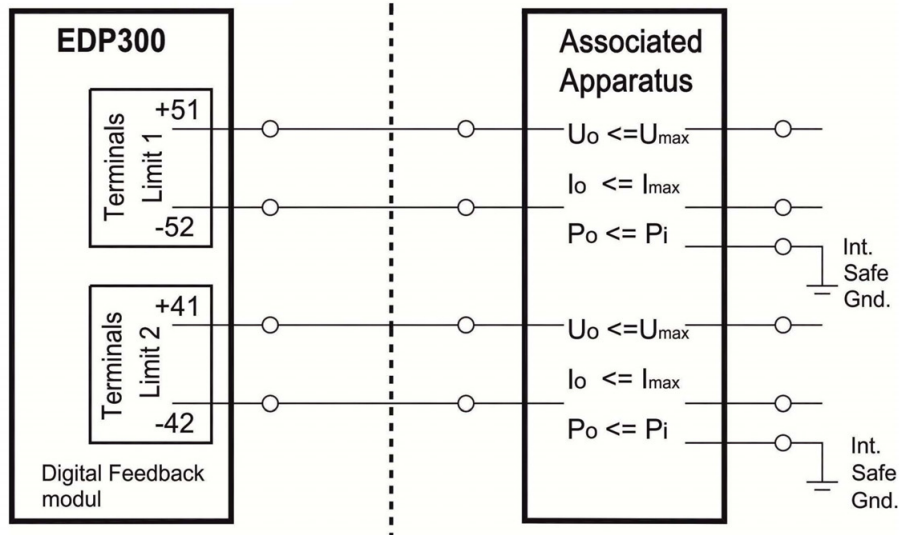
Ordering option A1 or B1



	T1 - T4	T6
U_{max}	30 V	28 V
I_{max}	320 mA	320 mA
P_i	1,0 W	0,8 W
C_i	11,3 nF	
L_i	150μH	

	T1 - T4	T6
T_a	(-40...85) °C	(-40...40) °C

Ordering option F2 or F3

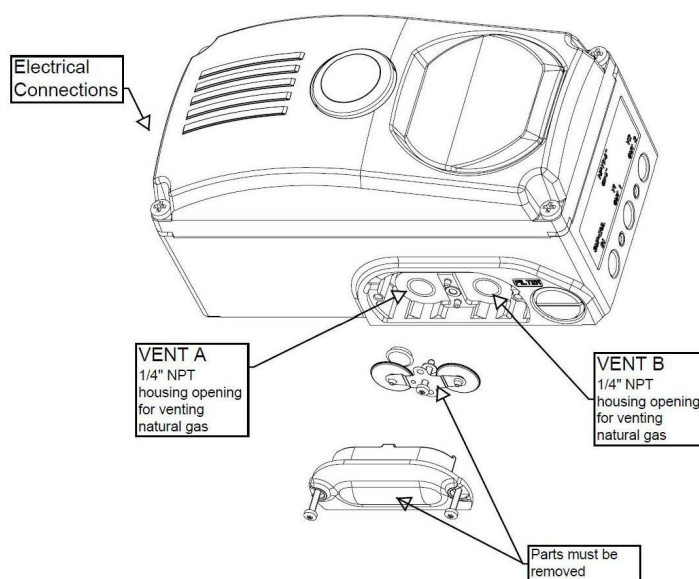


T1 - T4	T6
Pepperl+Fuchs, Inc. "NAMUR" output proximity sensor Type (NO) SJ2-SN or (NC) SJ2-S1N See Control Drawing "NAMUR SENSORS – FM" No. 116-0165	

					Date	Name	Title Control Drawing	Scale
				Drawn	15.03.11	Kresse		
				Appr..	28.09.11	Schaeff		
5		19.11.14	Lasar	Std.			EDP 300	
4		05.04.13	Lasar	<div>ABB</div> <div>Automation Products</div>				
3		20.03.12	Lasar					
2		16.01.12	Lasar					
1		28.9.11	Schaeff					
							Draw.-No. (Part-No.)	Sheet
							901305	5 / 6
Rev.	Change	Date	Name				Supersedes Dwg.	Part. Class


Ordering option P8

1. The usage of the PositionMaster with natural gas is only permitted in type of protection “Intrinsic Safe”.
2. If the PositionMaster is used with natural gas, the venting of the PositionMaster has to be routed safely to outside the hazardous area.
3. If the PositionMaster uses natural gas instead of compressed air, the maximum ambient temperature is 60 °C.
4. Only PositionMaster models with ordering option P8 may be operated with natural gas.
5. The natural gas operation can only be accomplished with clean, dry, non-sulfurous, additive-free natural gas.
6. Do not operate the PositionMaster with natural gas in closed or non-ventilated areas.
7. Natural gas continuously vent through the PositionMaster housing and must always be directed away from the PositionMaster to a safe discharge area outside the hazardous area, by piping or tubing connected to the PositionMaster vent ports.
8. Special care must be taken during maintenance activities at or near the positioner and actuator because of the presence of pressurized natural gas. Depressurize and vent actuators and devices connected to the pressurized natural gas supply carefully to a non-hazardous atmosphere, and wait several minutes for complete depressurization.



9. Vent tubing connection requirement, shown as VENT A & VENT B (above), is 1/4" NPT. The tubing size for Vent A & Vent B should match the supply tubing size.
10. The vent tubing system at VENT A must be designed and implemented to minimize the back pressure to less than 1 PSIG.

No revision to this document without prior FM/CSA authorization.

				Date	Name	Control Drawing		Scale
			Drawn	15.03.11	Kresse			
			Appr..	28.09.11	Schaeff			
5		19.11.14	Lasar	Std.		EDP 300		Sheet 6 / 6
4		05.04.13	Lasar	 Automation Products		Draw.-No. (Part-No.)		
3		20.03.12	Lasar					
2		16.01.12	Lasar					
1		28.9.11	Schaeff					
Rev.	Change	Date	Name			Supersedes Dwg.		Part. Class

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