GEMÜ 1436 cPos

Intelligent positioner and integrated process controller



Features

- Digital inputs (option) for variable function control for automation
- No air consumption when idle
- Simple mounting to various actuators
- Access rights via different user levels
- High flow rate

Description

The GEMÜ 1436 cPos digital electro-pneumatic positioner has an optional integrated process controller to control pneumatically operated process valves with single acting or double acting linear or quarter turn actuators. When using the optional process controller, the signals from the sensors (e.g. flow, level, pressure, temperature) are detected and the media adjusted according to the specified set value. GEMÜ 1436 cPos has a robust aluminium housing with protected operating keys and an LCD display which allows the product to be individually adapted to complex control tasks.

Technical specifications

- **Ambient temperature:** 0 to 60 °C
- **Operating pressure :** 1.5 to 7 bar
- **Mode of action:** Double acting l Single acting
- **Flow rate:** 100 Nl/min l 172 Nl/min l 84 Nl/min
- **Measuring range:** Max. 30 mm, linear l Max. 50 mm, linear l Max. 75 mm, linear l Max. 90°, radial
- **Supply voltage:** 24 V DC
- **Electrical connection types:** M12 connector
- **Conformity:** EAC

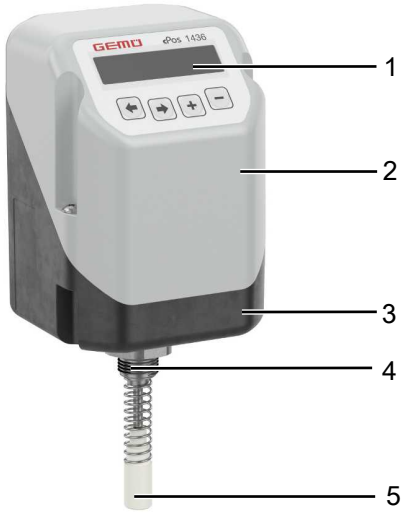
Technical data depends on the respective configuration

webcode: GW-1436

Product line

					
	GEMÜ 1434 µPos	**GEMÜ 1436 eco cPos**	**GEMÜ 1435 ePos**	**GEMÜ 1436 cPos**	**GEMÜ 1441 cPos-X**
Controller type					
Positioner	●	●	●	-	●
Positioners and process controllers	-	-	-	●	-
Ambient temperature	0 to 60 °C	0 to 60 °C	-20 to 60 °C	0 to 60 °C	-10 to 60 °C
Supply voltage					
24 V DC	●	●	●	●	-
Via set value signal	-	-	-	-	●
Flow rate	15 Nl/min	100 Nl/min 84 Nl/min	50 Nl/min 90 Nl/min	100 Nl/min 172 Nl/min 84 Nl/min	115 Nl/min
Measuring range					
Max. 30 mm, linear	●	●	●	●	-
Max. 50 mm, linear	-	●	●	●	-
Max. 75 mm, linear	-	●	●	●	●
Max. 90°, radial	-	●	●	●	●
Electrical connection type					
M12 cable gland	-	-	●	-	-
M12 connector	●	●	●	●	-
M16 cable gland	-	-	-	-	●
M12 plug	-	-	-	-	●
Programmable outputs					
No	●	●	-	-	-
Yes	-	-	●	●	●
Input option					
No	●	●	-	-	●
Yes	-	-	●	●	-
Conformity					
ATEX	-	-	-	-	●
EAC	●	●	●	●	-
FCC	-	-	-	-	●
HART	-	-	-	-	●
IECEx	-	-	-	-	●
UL listed	-	●	-	-	●
UL Recognized	-	-	-	-	●

Product description



Item	Name	Materials
1	Operating and display elements, membrane keypad	Polyester film with acrylic glass
2	Housing cover	PSU
3	Housing base	PP 30
4	Mounting kit, valve-specific	Materials, parts valve-specific

Functions

- Positioner and process controller combined and synchronized with each other
- Automatic or manual optimizing initialization
- Multiple point calibration for optimized valve control
- Diagnostics, alarm messages
- Operation possible when controller is active
- 4 parameter sets can be saved and reloaded
- 3 user levels (access authorization)
- Operating hours counter, event list (for details see operating instructions)
- Digital inputs (option) for variable function control for automation
- Alphanumeric display, 2 lines with 16 digits each, with background light
- Parameterization on the device through context-sensitive menu selection and help texts (optionally PC-supported via web browser)

GEMÜ CONEXO

The interaction of valve components that are equipped with RFID chips and an associated IT infrastructure actively increase process reliability.



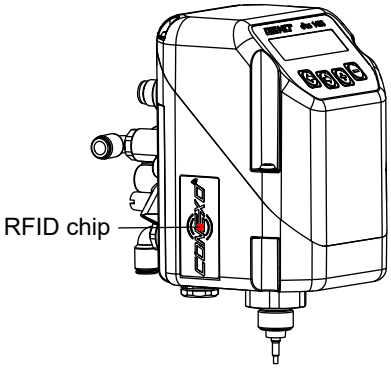
Thanks to serialization, every valve and every relevant valve component such as the body, actuator or diaphragm, and even automation components, can be clearly traced and read using the CONEXO pen RFID reader. The CONEXO app, which can be installed on mobile devices, not only facilitates and improves the "installation qualification" process, but also makes the maintenance process much more transparent and easier to document. The app actively guides the maintenance technician through the maintenance schedule and directly provides him with all the information assigned to the valve, such as test reports, testing documentation and maintenance histories. The CONEXO portal acts as a central element, helping to collect, manage and process all data.

For further information on GEMÜ CONEXO please visit:
www.gemu-group.com/conexo

Ordering

GEMÜ Conexo must be ordered separately with the ordering option "CONEXO".

Installing the RFID chip



Availability

Action	Flow rate		
	150 l/min	200 l/min	300 l/min (Booster)
Single acting	X	X	X
Double acting	X	X	-

Order data

The order data provide an overview of standard configurations.

Please check the availability before ordering. Other configurations available on request.

Note: Pneumatic connecting components (union and compressed air tube) for the connection between the process valve and positioner are included with each positioner.

Note: A valve specific mounting kit is required for assembly. For designing the mounting kit, the valve type, nominal size, control function and actuator size must be stated.

Order codes

1 Type	Code
Positioner, electro-pneumatic cPos	1436

2 Fieldbus	Code
Without	000

3 Accessory	Code
Accessory	Z

4 Action	Code
Single acting	1
Double acting	3

5 Device version	Code
Positioner	SA01
Positioner and process controller	PA01

6 Option	Code
Without	00
2 additional digital inputs 24 V DC	01
Pneumatic connections for ¼" tube	US

7 Flow rate	Code
150 l/min	01
200 l/min	02
300 l/min (Booster)	03

8 Travel sensor length	Code
Potentiometer, 30 mm length	030
Potentiometer, 50 mm length	050
Potentiometer, 75 mm length	075
Potentiometer, 90° travel	090
Remote potentiometer, M12 connector	S01

9 Type of design	Code
Standard	
Dead zone presetting 2%	2442
Dead zone presetting 5%	2443
Inversed direction, for quarter turn valves control function NO (2)	6960

10 CONEXO	Code
Without	
Integrated RFID chip for electronic identification and traceability	C

Order example

Ordering option	Code	Description
1 Type	1436	Positioner, electro-pneumatic cPos
2 Fieldbus	000	Without
3 Accessory	Z	Accessory
4 Action	1	Single acting
5 Device version	SA01	Positioner
6 Option	00	Without
7 Flow rate	01	150 l/min
8 Travel sensor length	030	Potentiometer, 30 mm length
9 Type of design		Standard
10 CONEXO		Without

Technical data

Medium

Working medium: Compressed air and inert gases

Dust content: ≤ 10 mg/m³/particle size ≤ 40 µm (class 7)

Pressure dew point: Class 4, max. pressure dew point +3 °C

Oil content: Class 4, max. oil concentration 5 mg/m³
Quality classes to DIN ISO 8573-1

Temperature

Ambient temperature: 0 — 60 °C

Storage temperature: 0 — 60 °C

Product conformity

EMC Directive: 2014/30/EU
Technical standards used:

Interference emission:	DIN EN 61000-6-4 (09/2011) DIN EN 61326-1(industry) (01/2006)
Interference resistance:	DIN EN 61000-6-2 (03/2006) DIN EN 61326-1(industry) (10/2006)

Pressure

Operating pressure: 1.5 — 7 bar
The applied pressure must not exceed the maximum control pressure of the process valve.

Flow rate:

Flow rate (code)	Specification l / min [1]	Specification Nl / min [2]
Code 01	150 l/min	84 Nl/min
Code 02	200 l/min	100 Nl/min
Code 03 (Booster)	300 l/min	172 Nl/min

1) Reference condition: 6 → 0 bar at 25 °C

2) Reference condition: 6 → 5 bar at 25 °C

Air consumption: 0 Nl/min (when idle)

Mechanical data

Installation position: Optional

Protection class: IP 65 acc. to EN 60529

Weight: 600 g

Travel sensor: Integrated for direct mounting

	Linear design			Quarter turn design
Detection range:	0–30 mm	0–50 mm	0–75 mm	Angle of rotation 0 - 93°
Operating range:	0–30 mm	0–50 mm	0–75 mm	Angle of rotation 0 - 93°
Minimum travel sensor change:	≥ 3 % (only relevant for initialization)			
Resistance R:	3 kΩ	5 kΩ	5 kΩ	3 kΩ
Correlation - Travel sensor [1] **spindle/valve position**	Retracted (top) ≙ 100% (valve open)			90° ≙ 100% (valve open)
	Extended (bottom) ≙ 0% (valve closed)			0° ≙ 0% (valve closed)

1) Type of design code 6960: Inversed mode of action compared with description (Travel sensor signal inversed). For valves with inverted correlation.

Acoustic data

Noise emission: > 80 dB (A)

Electrical data

Power supply

Supply voltage: 24 V DC (-5/+10%)

Power consumption:

Single acting:	≤ 4.5 W
Double acting / Booster:	≤ 6.2 W
plus in each case:	max. 24 W for active digital outputs with max. on-load current

Reverse polarity protection: Yes

Duty cycle: Continuous duty

Electrical protection class: III

Analogue inputs

Set value / actual value:
- Set value and actual value input are galvanically isolated from the supply voltage
- Set value and actual value input are **not** galvanically isolated from the actual value output
- Set value and actual value input are **not** galvanically isolated from each other

Set value input: 0/4 - 20 mA (adjustable)

Process actual value input: 0/4 - 20 mA (adjustable)
Only for device version code PA01

Input type: passive

Input resistance: 120 Ω (+ approx. 0.7 V voltage drop due to reverse battery protection)

Accuracy/linearity: ≤ ±0.3% of full scale value

Temperature drift: ≤ ±0.3% of full scale value

Resolution:	12 bit
Reverse polarity protection:	Yes
Overload proof:	Yes (up to ± 24 V DC)

Analogue output

Actual value output:	4–20 mA
Output type:	Active
Load resistor:	Max. 600 Ω
Accuracy:	≤ ±1% of full scale value
Temperature drift:	≤ ±0.5% of full scale value
Resolution:	12 bit
Short-circuit proof:	Yes
Overload proof:	Yes (up to ± 24 V DC)

Digital input

Note:	The additional digital inputs 1 / 2 must be ordered via the ordering option "Option".
Inputs:	1 / 2
Function:	selectable via software (DigIn 1; DigIn2; DigInW; DigInX) (reference: GND X1:3)
Input voltage:	24 V DC
Input current:	2.5 mA DC at 24 V DC
High level:	>14 V DC
Low level:	< 8 V DC

Digital output

Switching outputs:	K1 / K2
Function:	Can be selected using software
Switching voltage:	Supply voltage
On-load current:	max. 0.5 A
Drop voltage:	Max. 2.5 V DC at 0.5 A
Type of contact:	PNP
Pull-Down resistance:	120 kΩ
Short-circuit proof:	Yes
Overload proof:	Yes (up to ± 24 V DC)

Travel sensor input (for travel length code S01 – remote potentiometer)

Note: Travel sensor input galvanically isolated from supply voltage, not galvanically isolated from the set value/actual value inputs and actual value output.

Input voltage range: 0 to U_{P+}

Supply voltage UP+: Typically 10 V DC

Resistance range of remote potentiometers: 1 to 10 kΩ

Input resistance: 620 kΩ

Accuracy/linearity: ≤ ±0.3% of full scale value

Temperature drift: ≤ ±0.3% of full scale value

Resolution: 12 bit

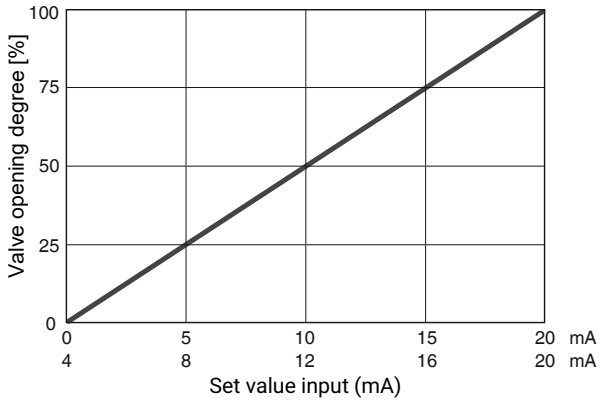
Short-circuit proof: Yes

Overload proof: Yes (up to ± 24 V DC)

Positioner data

Note: The following diagram is valid for valves with a standard assignment of the spindle position to the valve position.
(See section "Mechanical data, correlation between travel sensor spindle/valve position")

Control diagram: Default setting / The control characteristic is adjustable.



During initialization, the 1436 cPos positioner automatically detects the control function of the valve and adjusts itself by default so that the valve is closed when the signal is 0/4 mA.*
The assignment can subsequently be changed using parameters.
* For double-acting actuators, depends on the pneumatic actuator

Positioner

System deviation (dead zone): 1 % default setting
≥ 0.1 % (adjustable)
≤ 2.0 % (preset, K-no. 2442)
≤ 5.0 % (preset, K-no. 2443)

Parameterisation: adjustable

Initialization: automatic or manual

Close tight function: option

Process controller

Option only for device version code PA01

Controller type: Continuous controllers

PID parameters: adjustable

Process actual value input: 0/4 - 20 mA (adjustable)

Interfaces

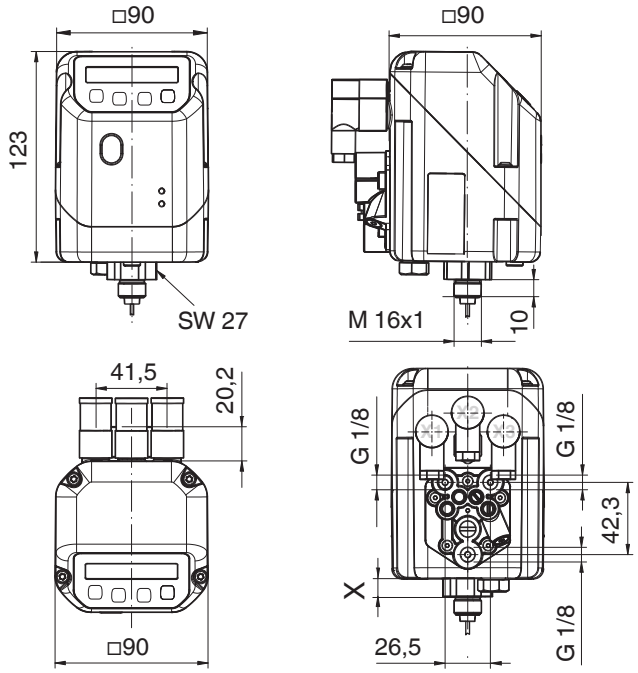
	RS232
Function	Parameterization via web browser
Transmission rates	-

** Auto Baud: The device has an Auto Baud function and therefore automatically adjusts to the bus-side configuration of the transmission rate.

*** Two switches are connected in series internally between connection X1 and X3.
Communication lead time during operation in line structure (connection X1 and X3) therefore double that of a "standard two-port device".

Dimensions

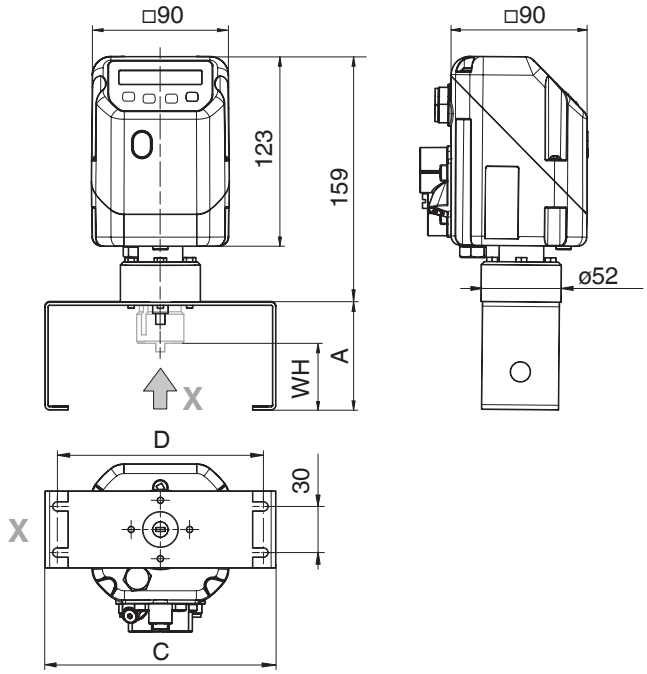
Positioner dimensions



Travel sensor length Code	X
030	10.3
050	32.5
075	57.5

Dimensions in mm

Direct mounting to quarter turn actuators

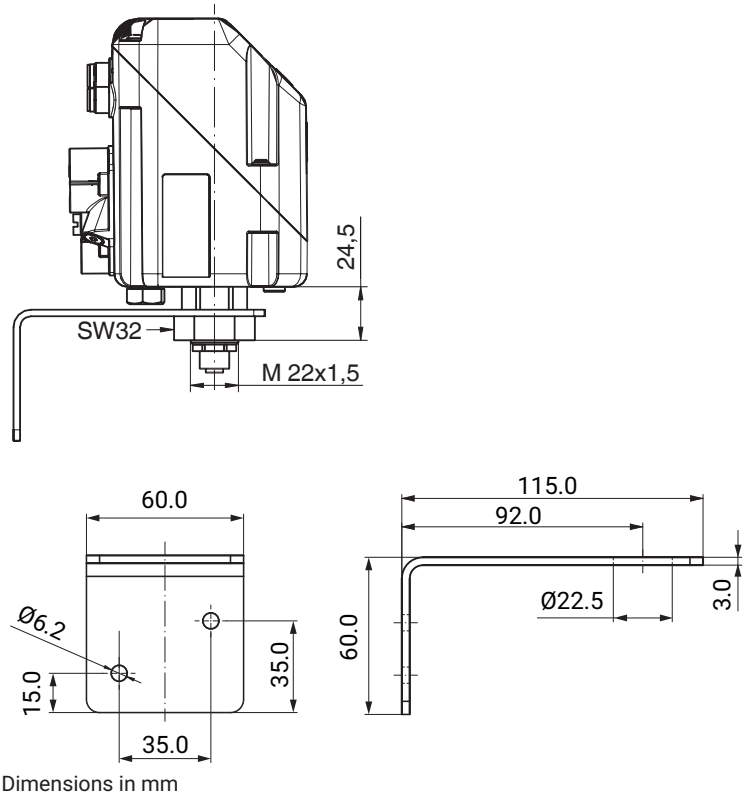


Shaft height WH	Hole spacing D	A	C
20.0	80.0	40.0	100.0
30.0	80.0	50.0	100.0
50.0	130.0	70.0	150.0

Dimensions in mm

Remote mounting with mounting bracket

The product with separately available mounting bracket GEMÜ 1436 000 ZMP

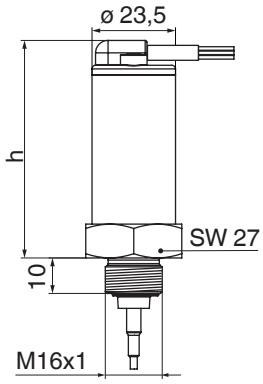


Dimensions in mm

Accessory dimensions

GEMÜ 4232 travel sensor

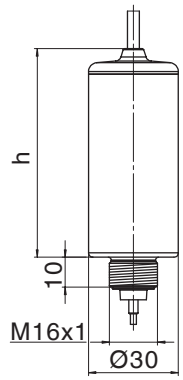
Housing material aluminium



Travel sensor length (code)	h
030	62.2
050	84.2
075	109.2

Dimensions in mm

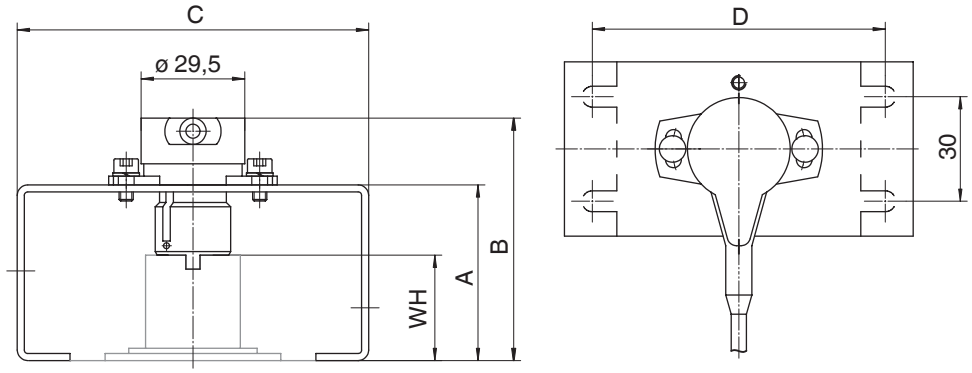
Housing material PVDF or PP



Travel sensor length (code)	h
030	69.6
050	91.6
075	116.6

Dimensions in mm

GEMÜ 4231 travel sensor with mounting bracket

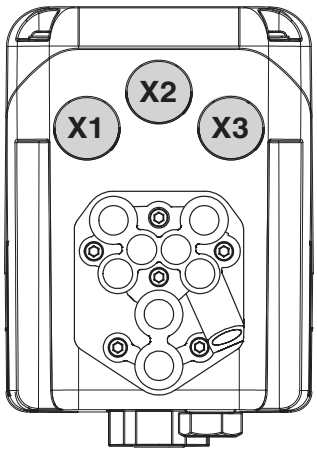


WH Shaft height	D Hole spacing	A	B	C
20.0	80.0	40.0	59.0	100.0
30.0	80.0	50.0	69.0	100.0
50.0	130.0	70.0	89.0	150.0

Dimensions in mm

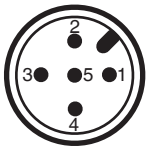
Electrical connection

Position of the connectors



24 V

Connection X1

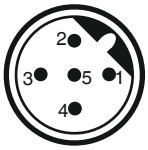


5-pin M12 plug, A-coded

Pin	Signal name
1	U_v, 24 V DC supply voltage
2	Switching output K1, 24 V DC (switches Uv [1)])
3	GND, (supply voltage, DigIn1+2+W +X; K1+2)
4	Switching output K2, 24 V DC (switches Uv [1)])
5	Digital input 1 (only for Option code 01)

1) Switching output switches device supply voltage U_v - drop voltage

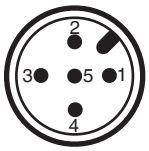
Connection X2



5-pin M12 plug, B-coded

Pin	Signal name	
1	I+, actual value output	4-20 mA internal supply; active
2	I-, actual value output	
3	RxD, Receive Data, TxD-P	
4	TxD, Transmit Data, RS 232	
5	GND, RS 232	

Connection X3



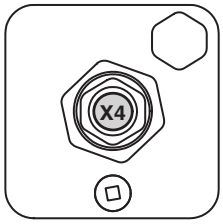
5-pin M12 plug, A-coded

Pin	Signal name	
1	W+, set value input	
2	W-, set value input / Digital In W (only for Option code 01)	
3	X+, process actual value input	Working as a process controller
4	X-, process actual value input / Digital In X (only for Option code 01)	
5	Digital input 2 (only for Option code 01)	

Version with external actual value potentiometer

Note: Ordering option Travel sensor version code S01

Position of the connectors



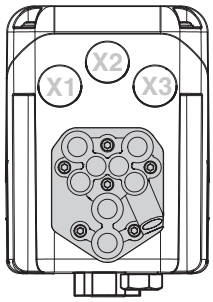
Connection X4

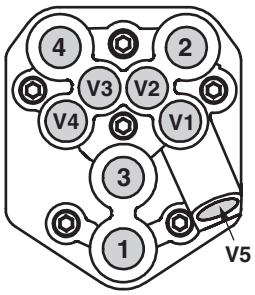


Five-pin M12 built-in socket, A-coded

Pin	Signal name
1	UP+, potentiometer output, supply voltage (+)
2	UP, potentiometer input, wiper voltage
3	UP-, potentiometer output, supply voltage (-)
4	n.c.
5	n.c.

Pneumatic connection





DIN ISO 1219-1	Designation	Size
1	Air supply connection P	G1/8 [1)]
3	Venting connection R with silencer	G1/8 [1)]
V1	Supply air throttle for A1 (connector 2)	-
V2	Exhaust air throttle for A1 (connector 2)	-
V3	Exhaust air throttle for A2* (connector 4)	-
V4	Supply air throttle for A2* (connector 4)	-
V5	Check valve	-
2	Working connection A1 for process valve (control function 1 and 2)	G1/8 [1)]
4	Working connection A2 for process valve (control function 3) [2)]	G1/8 [1)]

1) As standard, the connection is equipped with a pneumatic screw connection for commercially available pneumatic tubing 6x4 mm.

2) only double acting type (code 3)

Fail safe function		
Error	**Working connection A1 (2)**	**Working connection A2 (4)**
Power supply failure	Single acting: vented Double acting: vented	Single acting: - Double acting: pressurized
Compressed air supply failure	Single acting: vented Double acting: vented	Single acting: - Double acting: undefined
This fail safe function is not a substitute for specific plant safety requirements.		

Adjustable safety reactions		
Error	**Working connection A1 (2)**	**Working connection A2 (4)**
Set value < 4,0 mA (range adjustable from 0...22 mA under I Min W)	Single acting: Function adjustable (Open, Close**, Hold, Safe) Double acting: Function adjustable (Open, Close**, Hold, Safe)	Single acting: - Double acting: Function adjustable (Open, Close**, Hold, Safe)
Set value > 20 mA (range adjustable from 0...22 mA under I Min W)		
Actual value < 4.0 mA (range adjustable from 0...22 mA under I Min X)*		
Actual value > 20.0 mA (range adjustable from 0...22 mA under I Max X)*		
* only available for Device version code PA01 ** Close = default setting		

Mounting options

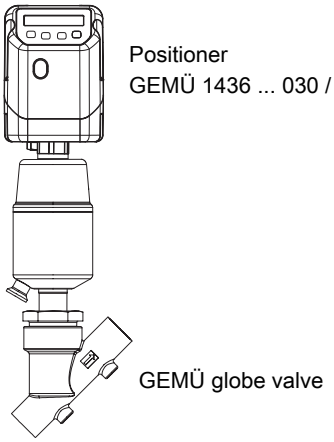
Mounting the positioner to linear actuators

Direct mounting

For direct mounting of the positioner on a valve with linear actuator, you need the following components

- GEMÜ 1436 positioner in travel sensor version code 030, 050 or 075 (dependent on the stroke of the valve used)
- GEMÜ 1436 S01 Z... valve-specific mounting kit for mounting the positioner

(At the time of ordering, state the valve type with nominal size and control function)



Remote mounting

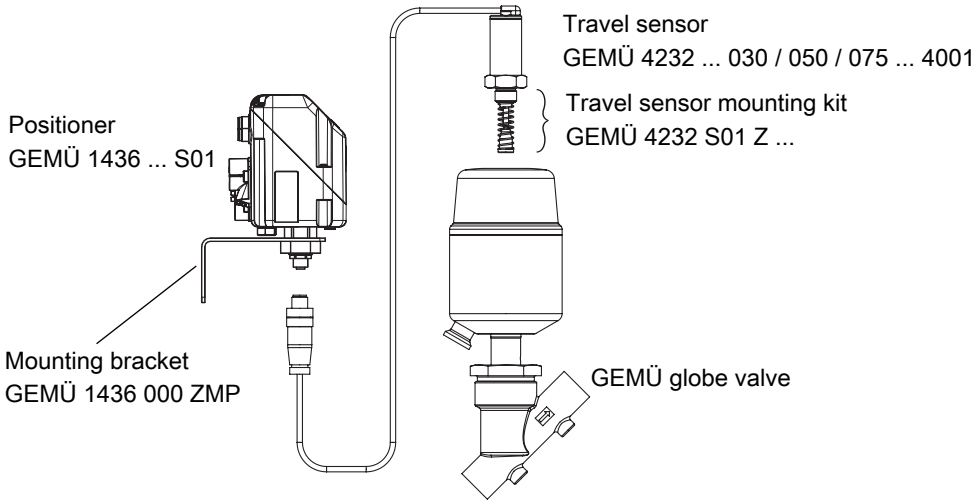
For remote mounting of the positioner on a valve with linear actuator, you need the following components

- GEMÜ 1436 positioner in travel sensor version code S01 (remote potentiometer)
- Travel sensor GEMÜ 4232 ... 030, 050 or 075... 4001

(Travel sensor version dependent on the valve used; cable length dependent on the required distance between the valve and positioner)

- GEMÜ 4232 S01 Z... valve-specific mounting kit for mounting the travel sensor
- GEMÜ 1436 000 ZMP mounting bracket (optional) for fixing the positioner

(At the time of ordering, state the valve type with nominal size and control function and the required distance to the mounting location of the positioner)



By using remote mounting and additional, deviating components, the valve can also be used in potentially explosive areas (provided that this is approved). In this case, the positioner must be installed outside the potentially explosive area and the connection with the travel sensor established via safety barriers.

The electrical connection and the installation must be carried out in accordance with the specifications in the operating instructions.

Applicable area (zone) dependent on the type of ignition protection of the valve or travel sensor.

The following deviating, supplementary components are to be used for this type of operation:

- Travel sensor in explosion-protected design GEMÜ 4232 ... 030/050/075 ... 0000 ... X
  Travel sensor version dependent on the valve used, cable length dependent on the distance between the critical (potentially explosive) and safe zone
- Connector between travel sensor and positioner, GEMÜ 1219000Z0300SG00M0M125A, order number: 88208779
- Safety barrier A two-channel, safety barrier P626, order number: 99014203 *
- Safety barrier B one-channel, safety barrier P630, order number: 99014207 *

* Alternative safety barriers with similar characteristics can be used on-site – technical properties available on request

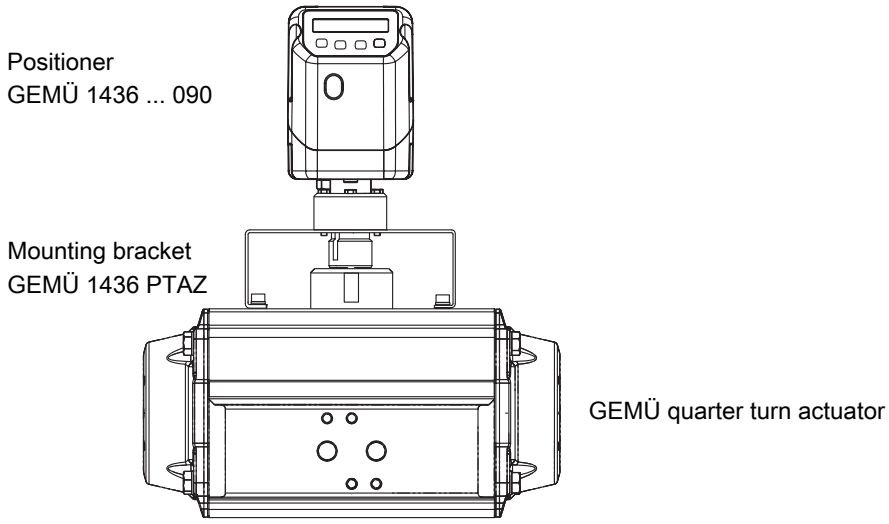
Mounting the positioner to quarter turn actuators

Direct mounting

For direct mounting of the positioner on a valve with quarter turn actuator, you need the following components

- Positioner GEMÜ 1436 … 090
- GEMÜ 1436 PTAZ … 090 000 valve-specific mounting kit for mounting the positioner

(At the time of ordering, state the valve type with actuator flange size)

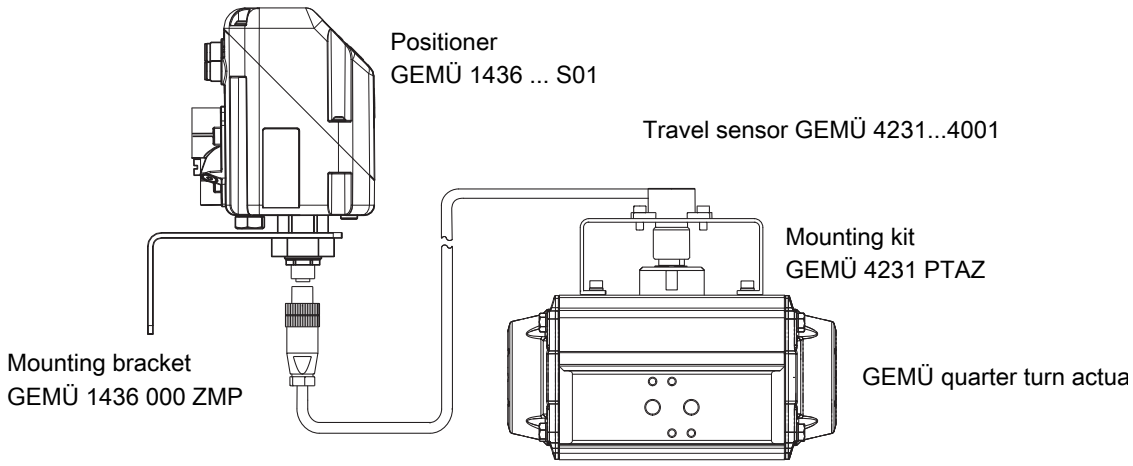


Remote mounting

For remote mounting of the positioner on a valve with quarter turn actuator, you need the following components

- GEMÜ 1436 positioner in travel sensor version code S01 (remote potentiometer)
- GEMÜ 4231...4001 travel sensor (cable length dependent on the required distance between the valve and positioner)
- 4231PTAZ... ...090 000 valve-specific mounting kit for mounting the travel sensor
- GEMÜ 1436 000 ZMP mounting bracket (optional) for fixing the positioner

(When ordering, specify the actuator flange size and the required distance to the mounting location of the positioner)



By using remote mounting and additional, deviating components, the valve can also be used in potentially explosive areas (provided that this is approved). In this case, the positioner must be installed outside the potentially explosive area and the connection with the travel sensor established via safety barriers.

The electrical connection and the installation must be carried out in accordance with the specifications in the operating instructions.

Applicable area (zone) dependent on the type of ignition protection of the valve or travel sensor.

The following deviating, supplementary components are to be used for this type of operation:

- GEMÜ 4231 ... 0000 travel sensor
  cable length dependent on the required distance between critical (potentially explosive) and safe zone
- Connector between travel sensor and positioner, GEMÜ 1219000Z0300SG00M0M125A, order number: 88208779
- Safety barrier A two-channel, safety barrier P626, order number: 99014203 *
- Safety barrier B one-channel, safety barrier P630, order number: 99014207 *

* Alternative safety barriers with similar characteristics can be used on-site – technical properties available on request

Accessories



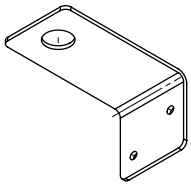
GEMÜ 1436 S02 Z

Connection kit

The 1436 S02 Z ... connection kit is used to electrically connect the GEMÜ 1436 cPos positioner to a control unit. The kit comprises pre-assembled cable connections with various connector plugs/sockets and suitable cables with selectable lengths or, alternatively, without a cable but with a threaded connection. The connectors for the 3 plugs of the GEMÜ 1436 cPos are included according to the ordering information.

Designation	Connection type X1/X3, A-coded	Connection type X2, B-coded	Order number
1436S02Z00M000M0	X1/X3 angle, without cable	X2 angle, without cable	88249257
1436S02Z00M000Y0	X1/X3 angle, without cable	X2 Y cable and M12 socket without cable	88254410
1436S02Z05M00000	X1/X3, 5 m cable	X2 protective cap	88261515
1436S02Z05M005M0	X1/X3 angle, 5 m cable	X2 angle, 5 m cable	88286587
1436S02Z00M00000	X1/X3 angle, without cable	X2 protective cap	88293897

[1] For simultaneous use - actual value output and RS232 interface (eSy.com)
Other cable lengths or combinations on request.



GEMÜ 1436 000 ZMP

Mounting bracket for external wall mounting

Mounting bracket for wall mounting

Designation	Order number
1436 000 ZMP	88246672



Subject to alteration | 11.2026 | 88242143

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