

Construction

The GEMÜ 566 2/2-way control valve has a body with an integrated control mechanism which can be controlled by various operator types.

Features

- Suitable for inert and corrosive* liquid and gaseous media
- Choice of three operator types (manual, pneumatic, motorized)
- Flow rates of 0.07 – 2.93 gpm
- CIP-capability

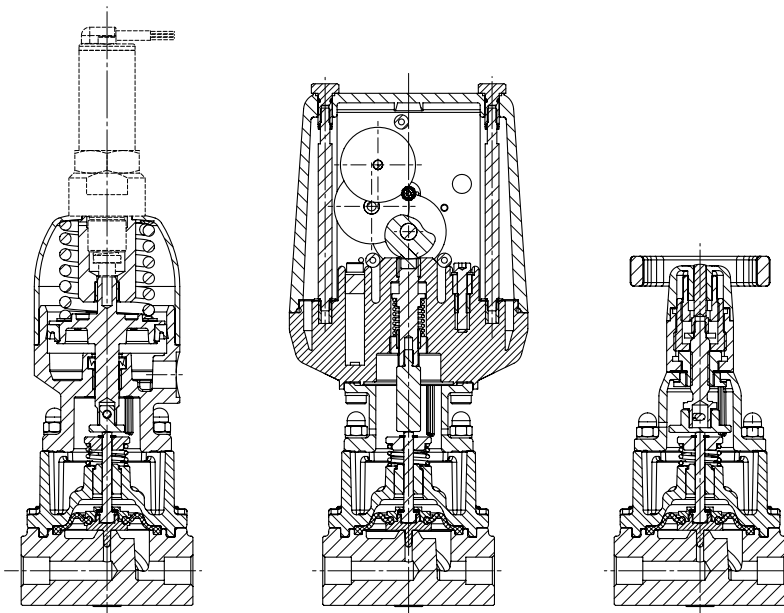
Options

- Versions according to ATEX for manual and pneumatic operation on request

Advantages

- The integrated control mechanism enables simple operator replacement and subsequent automation
- The piping need not be emptied when replacing the operator as the spindle is sealed by an isolating diaphragm
- Linear and equal-percentage control characteristics available

*see information on working medium on page 2

**Sectional drawing**

Technical data - manually operated valve

Working medium

Corrosive, inert, gaseous and liquid media which have no negative impact on the physical and chemical properties of the body and diaphragm material.

Media temperature 194 °F

CIP max. 30 min
(Isolating diaphragm material code 33) 185 °F

Ambient conditions

Ambient temperature max. 140 °F

Operator material

Bonnet A4 stainless steel, (1.4408)

Cap PEEK

Handwheel A4 stainless steel, (1.4408)

Operating pressure

Operating pressure 0 - 90 psi

All pressures are gauge pressures.
Valve bodies are approved up to PN 10.

Maximum permissible seat leakage class

Seat seal	Standard	Test procedure	Leakage rate	Test medium
Metal	DIN EN 60534-4	1	IV	air

Order data - manually operated valve

Body configuration	Code
2/2-way body	D

Control function	Code
Manually operated	0

Nominal size		Code
DN 8	NPS 1/4"	8
DN 10	NPS 3/8"	10
DN 15	NPS 1/2"	15
DN 20	NPS 3/4"	20

Operator version	Code
Standard	1TN
Locking device	1TB*
* Stroke effective in 7.5% steps	

Connection	Code
Threaded sockets DIN ISO 228	1
Clamps ASME BPE for pipe ASME BPE, length EN 558, series 7	88

Control characteristic	Code
Equal-percentage	G*
Linear	L*
* For selection see diagram page 8.	

Isolating diaphragm material	Code
FPM	4
EPDM	33

Cv value	see page 8
Cv values: Tolerance ±10%	

Valve body material	Code
1.4435 (ASTM A 351 CF3M \triangle 316L), investment casting C1	

Order example	566	8	D	1	C1	4	0	1TN	G	63
Type	566									
Nominal size		8								
Body configuration (code)			D							
Connection (code)				1						
Valve body material (code)					C1					
Isolating diaphragm material (code)						4				
Control function (code)							0			
Operator version (code)								1TN		
Control characteristic (code)									G	
Cv value										63

Article No.	Designation	Description
88264576	653MAGSV1 C1 AT	Electromagnetic locking device 24 V DC, normally closed, M22x1 ATEX
88232776	653MAGSV1 C1	Electromagnetic locking device 24 V DC, normally closed, M22x1 IP 54, plug design A DIN EN 175301-803
88279388	653MAGSV2 C1	Electromagnetic locking device 24 V DC, normally open, M22x1 IP 54, plug design A DIN EN 175301-803
88239348	653LOCSVL	Locking device M22x1 with padlock
88239405	653LOCSVB	Locking device M22x1 without padlock

Technical data - pneumatically operated valve

Working medium

Corrosive, inert, gaseous and liquid media which have no negative impact on the physical and chemical properties of the body and diaphragm material.

Media temperature 194 °F

CIP max. 30 min
(Isolating diaphragm material code 33) 185 °F

Control medium

Inert gases

Max. perm. temperature of control medium 158 °F

Filling volume: 1.83 cu in

Ambient conditions

Ambient temperature max. 140 °F

Operating pressure [psi]

0 - 90

Control pressure [psi]

65 - 102

All pressures are gauge pressures. Valve bodies are approved up to PN 10.

Maximum permissible seat leakage class

Seat seal	Standard	Test procedure	Leakage rate	Test medium
Metal	DIN EN 60534-4	1	IV	air

Order data - pneumatically operated valve

Body configuration	Code
2/2-way body	D

Control function	Code
Normally closed (NC)	1

Nominal size	Code
DN 8 NPS 1/4"	8
DN 10 NPS 3/8"	10
DN 15 NPS 1/2"	15
DN 20 NPS 3/4"	20

Actuator version	Code
Actuator version	1T1

Connection	Code
Threaded sockets DIN ISO 228	1
Clamps ASME BPE for pipe ASME BPE, length EN 558, series 7	88

Control characteristic	Code
Equal-percentage	G*
Linear	L*
* For selection see diagram page 8.	

Valve body material	Code
1.4435 (ASTM A 351 CF3M \triangleq 316L), investment casting C1	

Cv value	see page 8
Cv values: Tolerance $\pm 10\%$	

Isolating diaphragm material	Code
FPM	4
EPDM	33

Order example	566	8	D	1	C1	4	1	1T1	G	63
Type	566									
Nominal size		8								
Body configuration (code)			D							
Connection (code)				1						
Valve body material (code)					C1					
Isolating diaphragm material (code)						4				
Control function (code)							1			
Actuator version (code)								1T1		
Control characteristic (code)									G	
Cv value										63

In order to configure a complete control valve the pneumatically operated basic valve must be paired with an electro-pneumatic positioner. The GEMÜ 1434 and 1436 positioners and process controllers can be used for this purpose.

Technical data - motorized valve

Working medium

Corrosive, inert, gaseous and liquid media which have no negative impact on the physical and chemical properties of the body and diaphragm material.

Media temperature 194 °F

CIP max. 30 min
(Isolating diaphragm material code 33) 185 °F

Operating pressure

Operating pressure 0 - 90 psi

All pressures are gauge pressures.
Valve bodies are approved up to PN 10.

Ambient conditions

Ambient temperature 5 to 131 °F

Electrical data

Power supply $U_v = 24 \text{ V } 50/60 \text{ Hz } \pm 10 \%$
 $U_v = 120 \text{ V } 50/60 \text{ Hz } \pm 10 \%$
 $U_v = 230 \text{ V } 50/60 \text{ Hz } \pm 10 \%$

Power consumption 3.5 VA

Rating Continuously rated

Electrical connections
2 x PG 13.5
Versions AE, AP

2 x Round connector (Hirschmann plug N 6 R AM 2)
Versions E1, E2 and E3

Protection class

IP 65 acc. to EN 60529

Operating time

See actuator version page 7 approx. 17 or 45 s

Input resistance

33 Ω (input protected by reverse diode)

Maximum permissible seat leakage class

Seat seal	Standard	Test procedure	Leakage rate	Test medium
Metal	DIN EN 60534-4	1	IV	air

Order data - motorized valve

Body configuration	Code
2/2-way body	D

Nominal size	Code
DN 8 NPS 1/4"	8
DN 10 NPS 3/8"	10
DN 15 NPS 1/2"	15
DN 20 NPS 3/4"	20

Connection	Code
Threaded sockets DIN ISO 228	1
Clamps ASME BPE for pipe ASME BPE, length EN 558, series 7	88

Valve body material	Code
1.4435 (ASTM A 351 CF3M \triangleq 316L), investment casting C1	C1

Isolating diaphragm material	Code
FPM	4
EPDM	33

Supply voltage/mains frequency	Code
24 V 50/60 Hz	C4
120 V 50/60 Hz	G4
230 V 50/60 Hz	L4

Functional module	Code
OPEN / CLOSE control with additional end position feedback (signal voltage = supply voltage)	AE
OPEN / CLOSE control with potentiometer output	AP
Control of valve position, actual value detection internal, set value external, 0 - 10 V	E1*
Control of valve position, actual value detection internal, set value external, 0/4 - 20 mA	E2*
Control of process variables, actual value external, 0/4 - 20 mA, set value external, 0/4 - 20 mA	E3*

* only in conjunction with K-no. 6027

Control characteristic	Code
Equal-percentage	G*
Linear	L*

* For selection see diagram page 8.

Cv value	see page 8
Cv values: Tolerance $\pm 10\%$	

Actuator version	Code
Operating time 17 sec.	A0
Operating time 45 sec.	A1

Special version	K-no.
With Hirschmann plug	6027

Order example	566	8	D	1	C1	4	C4	AE	G	63	A0	-
Type	566											
Nominal size		8										
Body configuration (code)			D									
Connection (code)				1								
Valve body material (code)					C1							
Isolating diaphragm material (code)						4						
Supply voltage/mains frequency (code)							C4					
Functional module (code)								AE				
Control characteristic (code)									G			
Cv value										63		
Actuator version (code)											A0	
Special version (K-no.)												-

Cv values

Equal-percentage (Connection code 1)

Control characteristic	seat ø [in]	Cv value [gpm]	DN 8	DN 10	DN 15
G	0.12	0.07	X	-	-
G	0.12	0.12	X	-	-
G	0.12	0.19	X	-	-
G	0.24	0.29	X	-	-
G	0.24	0.47	X	-	-
G	0.24	0.74	X	-	-
G	0.43	1.17	-	X	-
G	0.43	1.87	-	X	-
G	0.59	2.93	-	-	X

Linear (Connection code 1)

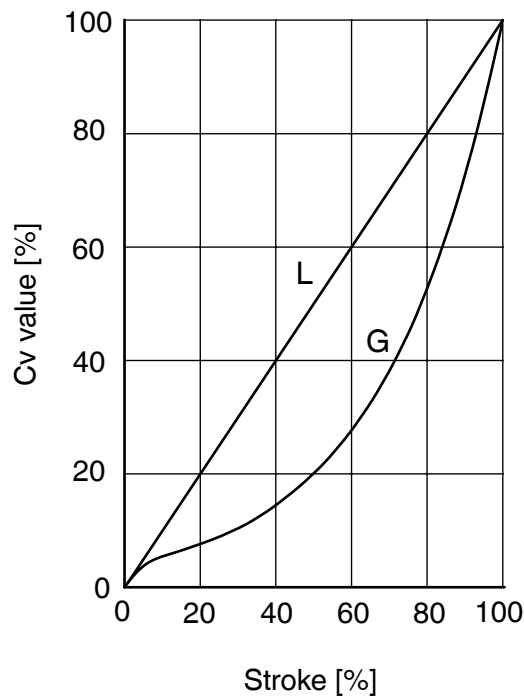
Control characteristic	seat ø [in]	Cv value [gpm]	DN 8	DN 10	DN 15
L	0.12	0.12	X	-	-
L	0.24	0.29	X	-	-
L	0.24	0.74	X	-	-
L	0.43	1.87	-	X	-
L	0.59	2.93	-	-	X

Equal-percentage (Connection code 88)

Control characteristic	seat ø [in]	Cv value [gpm]	DN 15	DN 20
G	0.12	0.07	X	-
G	0.12	0.12	X	-
G	0.12	0.19	X	-
G	0.24	0.29	X	-
G	0.24	0.47	X	-
G	0.24	0.74	X	-
G	0.43	1.17	X	-
G	0.43	1.87	X	-
G	0.59	2.93	-	X

Linear (Connection code 88)

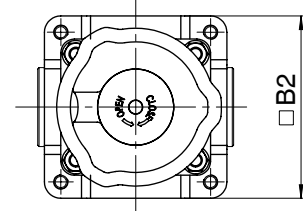
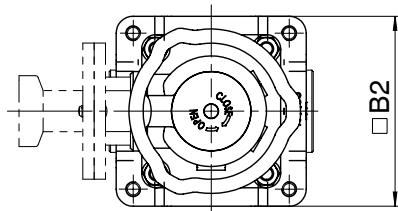
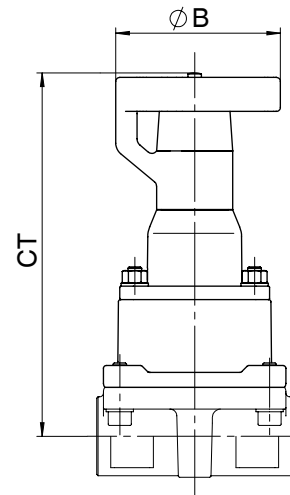
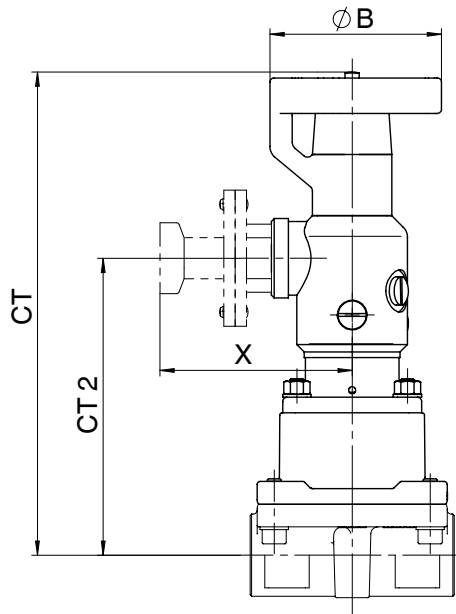
Control characteristic	seat ø [in]	Cv value [gpm]	DN 15	DN 20
L	0.12	0.12	X	-
L	0.24	0.29	X	-
L	0.24	0.74	X	-
L	0.43	1.87	X	-
L	0.59	2.93	-	X



Dimensions [inch]

Manual operator dimensions

Actuator size	CT	CT2	Ø B	□ B2	MAG	X	LOC
1TB	6.69	4.13	2.48	2.64	4.21		2.87
1TN	5.31	-	2.48	2.64	-		-

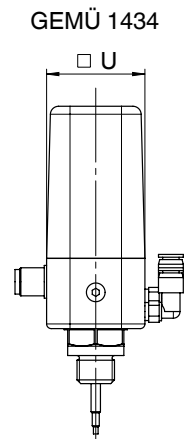
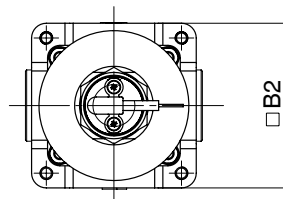
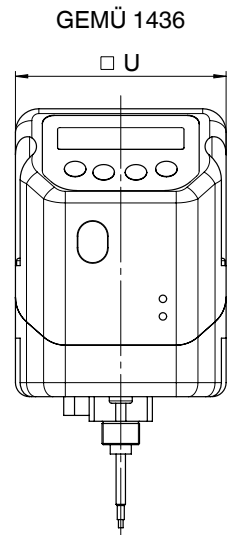
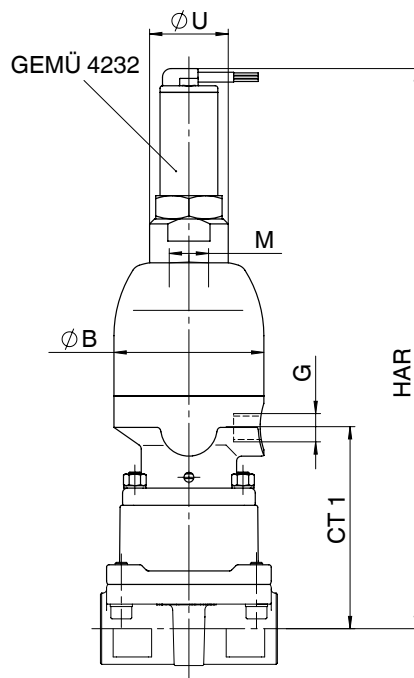


Dimensions [inch]

Pneumatic actuator dimensions

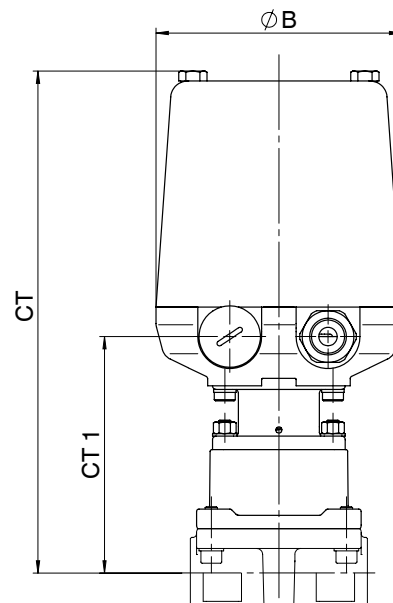
CT1	Ø B	□ B2	G	M
3.23	2.40	2.64	1/4	16x1

	HAR	□ U
GEMÜ 4232	8.98	1.26
GEMÜ 1434	10.04	1.65
GEMÜ 1436	11.14	3.54



Motorized actuator dimensions

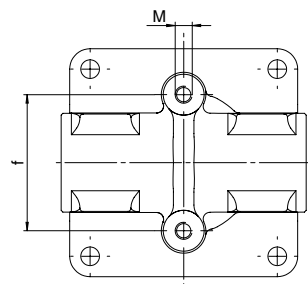
CT	CT1	Ø B
8.07	3.78	3.94



Dimensions [inch]

Valve body mounting dimensions

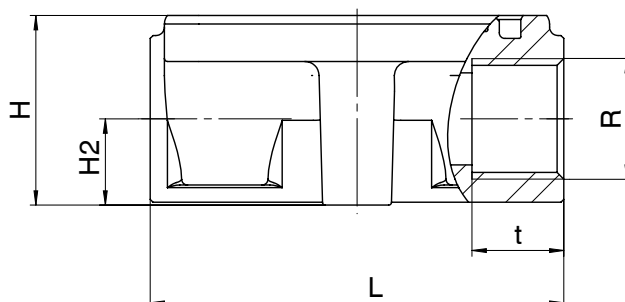
DN	f	M
8, 10, 15, 20	1.57	M5



Body dimensions [inch]

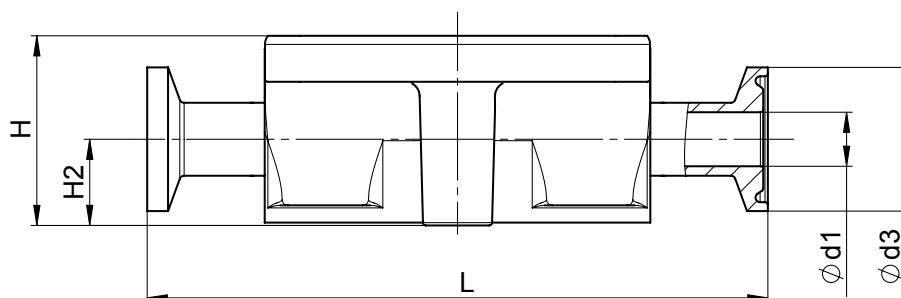
Threaded sockets, connection code 1 Valve body material: 316L (code C1)

DN	R	t	H	H2	L
8	G 1/4	0.63	1.30	0.59	2.83
10	G 3/8	0.63	1.30	0.59	2.83
15	G 1/2	0.63	1.30	0.59	2.83



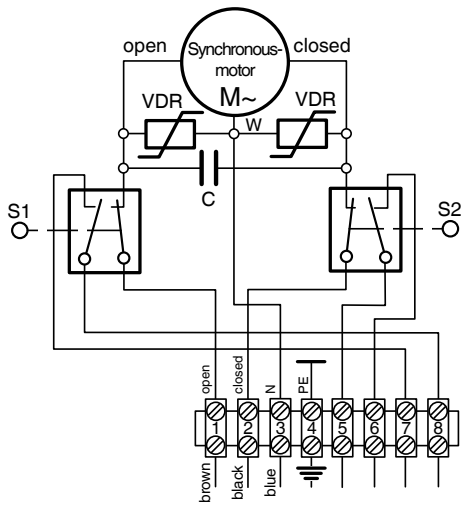
Clamp connections, connection code 88 Valve body material: 316L (code C1)

DN	L	H	H2	ø d1	ø d3
15	4.25	1.30	0.59	0.370	0.984
20	4.61	1.30	0.59	0.620	0.984

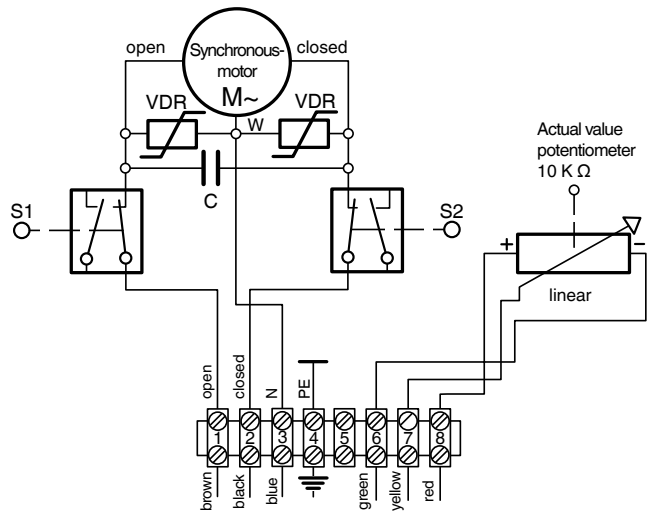


Connection diagramm

Connection diagram -
Functional module code AE

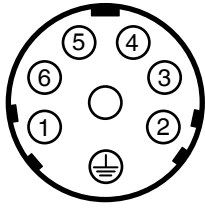


Connection diagram -
Functional module code AP

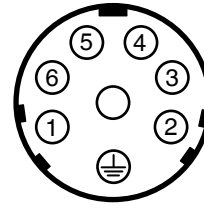


The voltage of the end position feedback must be identical with the supply voltage of the actuator.

Connection diagram - Functional module code E1 / E2

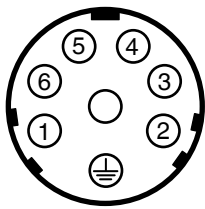


Pin	Designation
1	L, motor voltage
2	N, motor voltage
3	not connected
4	not connected
5	not connected
6	not connected
7	⏏, PE

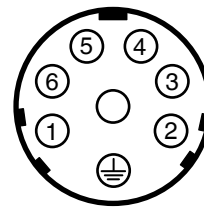


Pin	Designation
1	not connected
2	not connected
3	not connected
4	not connected
5	GND, set value input
6	I+ / U+, set value input
7	not connected

Connection diagram - Functional module code E3

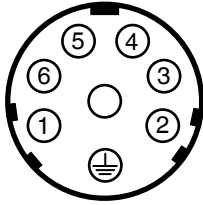


Pin	Designation
1	L, motor voltage
2	N, motor voltage
3	not connected
4	not connected
5	not connected
6	not connected
7	⏏, PE



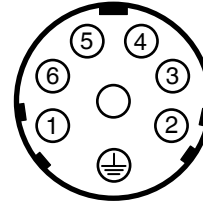
Pin	Designation
1	not connected
2	not connected
3	GND, actual value input
4	I+ / U+, actual value input
5	GND, set value input
6	I+ / U+, set value input
7	not connected

Functional module AE OPEN / CLOSE control with 2 additional end position feedback signals and Hirschmann plug N 6 R AM2 (design: 6027)



Pin	Designation
1	L1, motor voltage for direction of travel OPEN
2	L1, motor voltage for direction of travel CLOSED
3	N, reference voltage
4	n.c.
5	Us, S2 (24) CLOSED end position [Us=Ub]
6	Us, S1 (24) OPEN end position [Us=Ub]
7	⏏, PE

Functional module AP OPEN / CLOSE control with potentiometer output and Hirschmann plug N 6 R AM2 (design: 6027)



Pin	Designation
1	L1, motor voltage for direction of travel OPEN
2	L1, motor voltage for direction of travel CLOSED
3	N, reference voltage
4	Us +, actual value potentiometer, signal voltage
5	Us -, actual value potentiometer, signal output
6	Us ⏏, actual value potentiometer, signal voltage
7	⏏, PE

Electrical connection version		
	Terminal strip and cable gland	Hirschmann plug (K-no. 6027)
AE	X	X
AP	X	X
E1	-	X
E2	-	X
E3	-	X

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