

SMI983 Electrical Position Transmitter 4-20 mA



The electrical position transmitter SMI983 converts the linear or rotary movement of valve actuators into a 4 to 20 mA standard electrical signal.

FEATURES

- Non-reactive conversion of stroke position into a load-independent 4 to 20 mA DC signal
- Two-wire circuit
- Easy adjustment of zero and span with two Push Buttons and two LEDs
- Wear free, highly linear scanning with conductive plastic precision potentiometer
- Mounting according to IEC 534, part 6 (NAMUR)
- Simple matching to strokes of 5 to 100 mm and, by means of rotary adaptor, to angular displacements of 30° to 120°
- Explosion protection: II 2 G EEx ia IIB/IIC T4/T6 according to ATEX
- EMC in accordance with the international standards and laws (CE)

TECHNICAL DATA

Input

Stroke	5 to 100 mm with attachment kit for diaphragm actuators
Rotary angle	30 to 120° with attachment kit for rotary actuators

Output

Signal range	4 to 20 mA / 20 to 4 mA or free configuration 3.3 to 23.5 mA
Permitted load	$R_{bmax} = (U_s - 12 \text{ V}) / 0.02 \text{ A} [\Omega]$ (U_s = supply voltage)

Power supply

Reverse polarity protection . . .	standard feature
Supply voltage	$U_s = \text{DC } 12 \text{ to } 36 \text{ V}$
Permitted ripple	< 10 % p.p.
Supply voltage dependency . . .	negligible

Response characteristic

Non-linearity (terminal based adjustment)	< 1% F.S. ¹⁾
Hysteresis	< 0.5% F.S. ¹⁾
Load dependency	negligible
Temperature effect.	< 0.1 % / 10 K

Ambient conditions

Operating conditions	acc. to IEC 654-1
The device can be operated at a class Dx location.	
Ambient temperature	
Operation ²⁾	-40 ... 80 °C (-40 ... 176 °F)
Transport and storage	-40 ... 80 °C (-40 ... 176 °F)
Storage conditions	
acc. to IEC 60721-3-1:	1K5; 1B1; 1C2; 1S3; 1M2
Relative humidity	up to 100 %
Protection class	
acc. to IEC 529.	IP 65

Mounting

For attaching to diaphragm actuators acc. to DIN IEC 534-6 (NAMUR) and to rotary actuators acc. to VDI/VDE 3845. Further attachment kits are available, see TI EVE 0011. Mounting orientation. any

Electric connection

Line entry	1 or 2 cable glands M20x1.5 (others with Adapter AD-...)
Cable diameter	6 to 12 mm (0.24 to 0.47 in)
Screw terminals	Screw terminals for wires up to 2.5 mm ² (AWG 14)

Materials

Housing	Aluminum (Alloy No. 230) finished with DD varnish
All moving parts of	
feedback system	1.4305 / 1.4571
Mounting bracket	1.4301

Weight

SMI 983	approx. 0.7 kg (1.5 lbs)
Attachment kit	
for diaphragm actuators	approx. 0.3 kg (0.6 lbs)
for rotary actuators	approx. 0.5 kg (1.1 lbs)

Configuration and status

local	with local keys (two push buttons) and two LEDs
Status	with the two LEDs

1) For feedback lever effective length 117.5 mm (4.63 in), stroke 30 mm (1.28 in)

2) Note the section "Explosion protection" on page 3 with respect to explosion protected equipment.

SAFETY REGULATIONS

Safety requirements

Safety safety class III
 as per DIN EN 61010-1 (DIN IEC 61010-1) (VDE 0411 part 1)
 overvoltage category 1
 internal fuses none
 external fuses Limitation of power supplies
 for fire protection has to be
 observed due to EN 61010-1
 9.3. ff.

Electromagnetic compatibility EMC

Operating conditions industrial environment
 Immunity according to
 - NAMUR recommendation NE21 fulfilled
 - EN 61 326 fulfilled
 - EN 61 000-6-2 fulfilled
 Emission according to
 - EN 55 011,
 Group 1, Class A fulfilled
 - EN 61 000-6-2 fulfilled

CE marking

Electromagnetic compatibility 2004/108/EC
 Low voltage regulations w/o Ex: 73/23/EWG fulfilled
 (with Ex: not applicable)

Explosion protection ^{1) 2)}

see Certificate or Conformity Ex EVE0102 C
 Type of protection ATEX "Intrinsically safe"
 Type AI633 II 2 G EEx ib/ia IIB/IIC T4/T6
 Temperature classes T4 / T6
 EU Approval document No. PTB 02 ATEX 2153

For connections in hazardous areas with "intrinsically safe"
 certified circuits, with the maximum values:

For temperature class T4 and a maximum ambient
 temperature + 80 °C:

For $U_i=30$ V, $I_i=130$ mA, $P_i=0.9$ W

Internal inductance and capacitance:

$L_i=9$ μ H, C_i to earth 10 nF or differential 6 nF

For temperature class T6 and a maximum ambient
 temperature + 60 °C:

For $U_i=22$ V, $I_i=66$ mA, $P_i=0.5$ W

Internal inductance and capacitance:

$L_i=9$ μ H, C_i to earth 10 nF or differential 6 nF

1) With appropriate order only

2) National installation regulations must be observed.

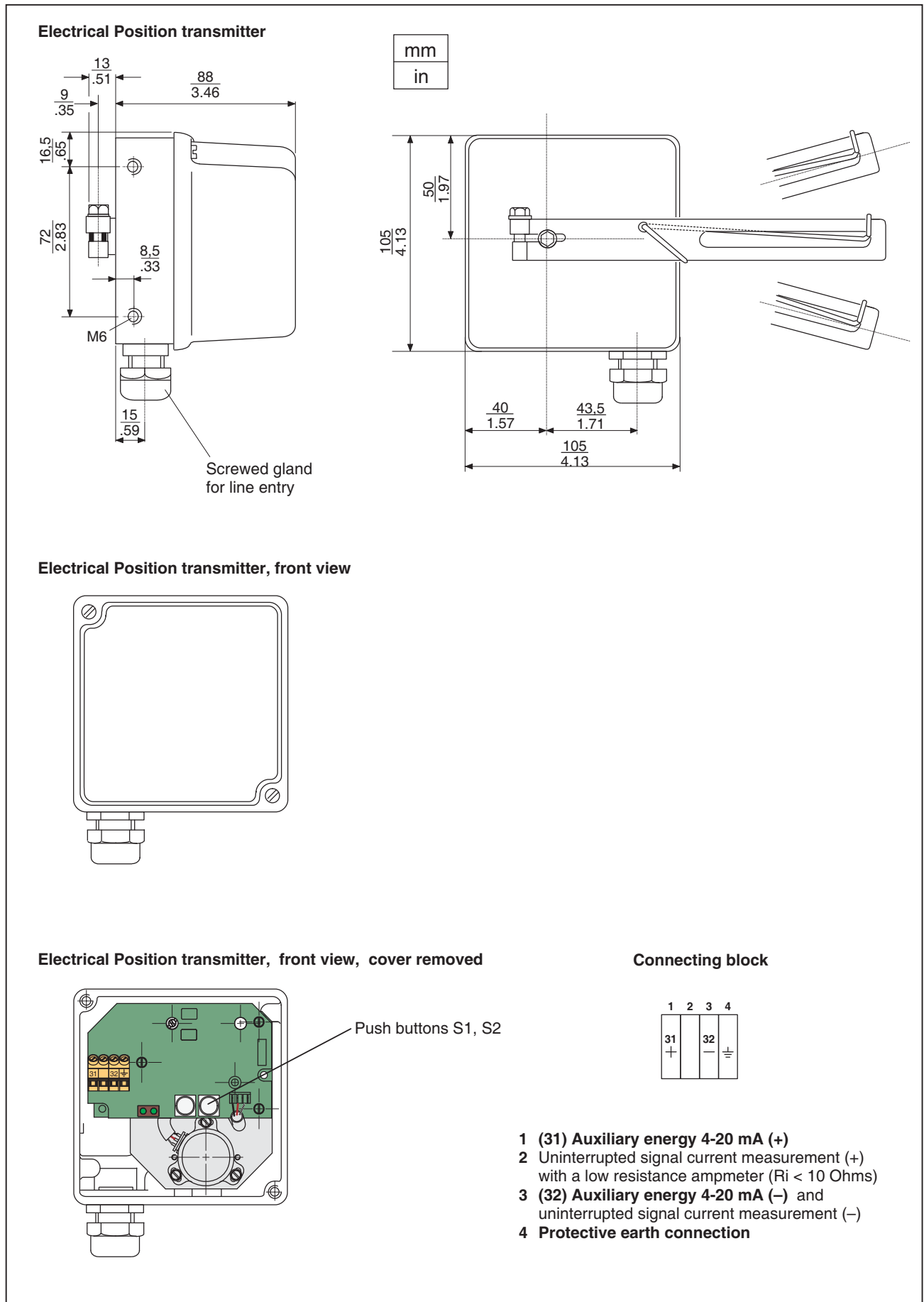
MODEL CODES SMI983

Electrical Position transmitter	SMI983					010413
Output						
signal range 4 to 20 mA		-I				
Cable Entry						
M20x1.5 plastic cable gland			7			
Explosion protection						
II 2 G EEx ia IIC T6 according to ATEX				EAA		
without				ZZZ		
Attachment kit						
order as auxiliary					N	
Options						
Certificate EN 10204-2.1 - Certificate of compliance with the order						-1
Tag.No. Labeling						
Stamped with weather resistant color						-G
Stainless steel label fixed with wire						-L
Example:	SMI983	-I	7	ZZZ	N	-L

MODEL CODES Accessories

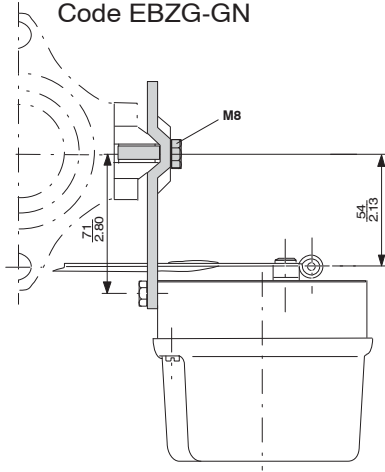
Attachment kit	EBZG	
for diaphragm actuators with casting yoke acc. to NAMUR (incl. standard Couple lever)		-GN
(for SRP981, SRI983, SMP981, SMI983, SGE985)		
for diaphragm actuators with pillar yoke acc. to NAMUR (incl. standard Couple lever)		-FN
(for SRP981, SRI983, SMP981, SMI983, SGE985)		
for rotary actuators, without flange, 3 drill holes 6.5 mm (for SRP981, SRI983, SRI986, SMP981, SMI983, SGE985)		-PN
for rotary actuators, without flange, 4 threads M6 (for SRP981, SRI983, SRI986, SMP981, SMI983, SGE985)		-NN
for rotary actuators, with flange (for SRP981, SRI983, SRI986, SMP981, SMI983, SGE985)		-JN
for rotary actuators, with shaft (for SRP981, SRI983, SRI986, SMP981, SMI983, SGE985)		-ZN
for Masoneilan type Camflex II (for SRP981, SRI983, SRI986, SMP981, SMI983, SGE985)		-RN
Couple lever / cam		
standard (a = 72 mm)		-AN
extended (a = 91 mm)		-BN
inverse equal percentage cam for rotary actuators		-CN
Adapter (Material SS)	AD	
Adapter (stainless steel) M20x1.5 to 1/2"-14NPT (internal thread)		-A6
Adapter (stainless steel) M20x1.5 to PG 13.5 (internal thread)		-A7
Adapter (stainless steel) M20x1.5 to G 1/2" (internal thread)		-A8
Adapter (plastic) M20x1.5 to PG 13.5 (internal thread)		-A9

DIMENSIONS

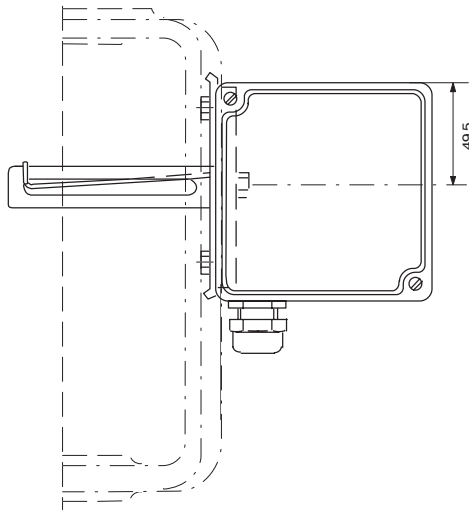
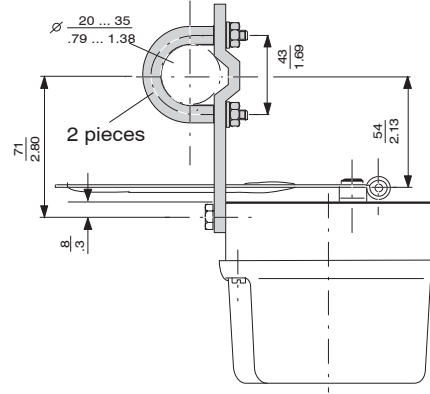


ATTACHMENT KIT FOR DIAPHRAGM ACTUATORS

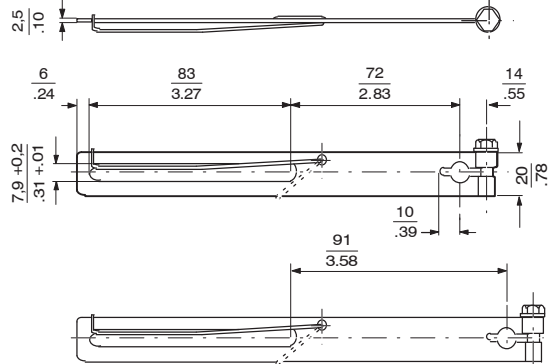
Attachment to casting yoke
according to IEC 534-6 (NAMUR)
Code EBZG-GN



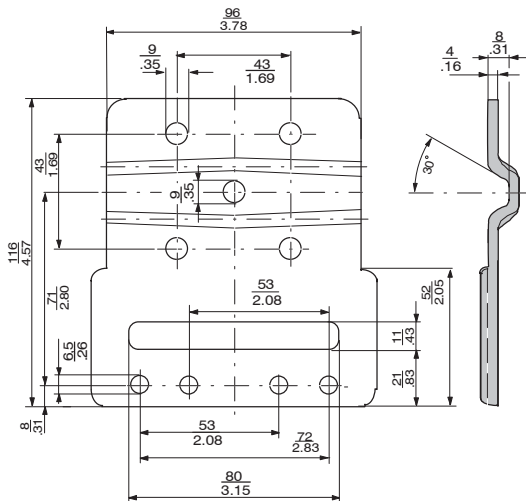
Attachment to pillar yoke
according to IEC 534-6 (NAMUR)
Code EBZG-FN



Feedback lever
Code EBZG-AN, -FN, -GN
Code EBZG-BN (extended version)

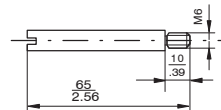


Mounting bracket
according to IEC 534-6 (NAMUR)
for Code EBZG-GN, FN



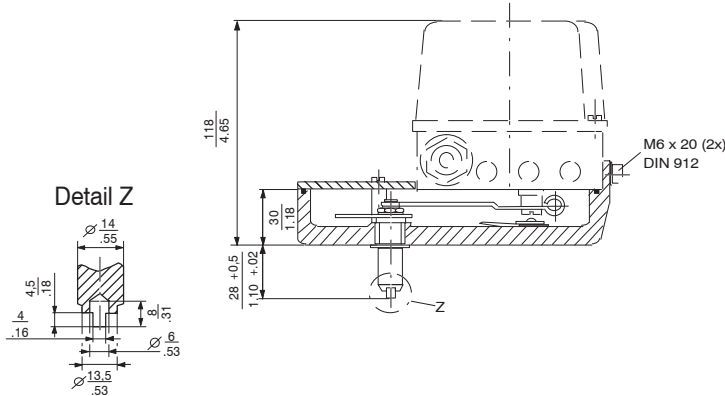
mm
in

Carrier bolt
for attachment to valve stem

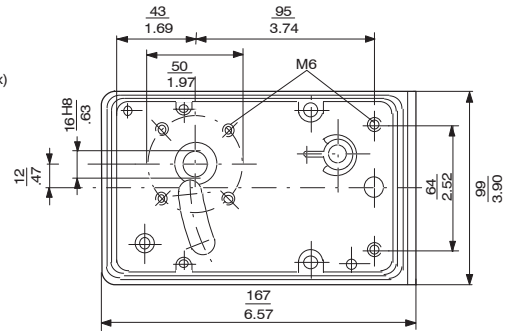


ATTACHMENT KIT FOR ROTARY ACTUATORS

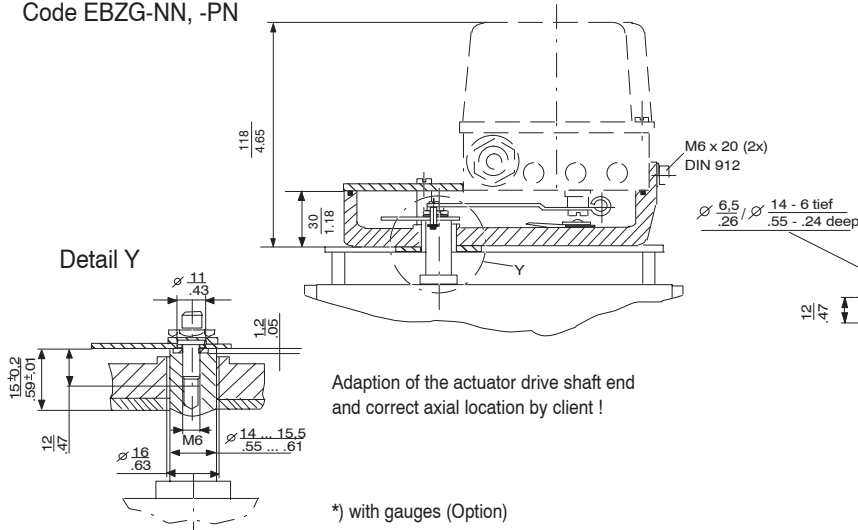
With shaft
 (according to VDI/VDE 3845)
 Code EBZG-ZN



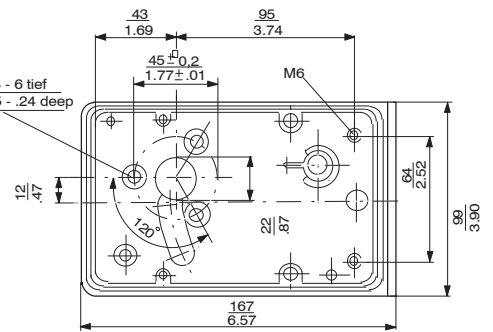
Housing dimensions
 Attachment kit with shaft
 resp. without flange
 Code EBZG-NN



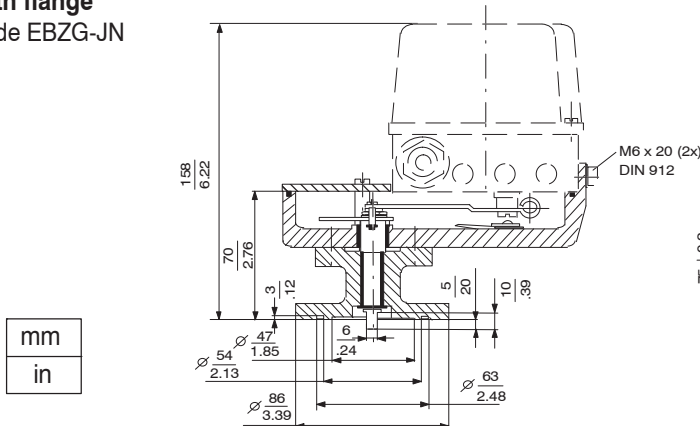
Without flange
 Code EBZG-NN, -PN



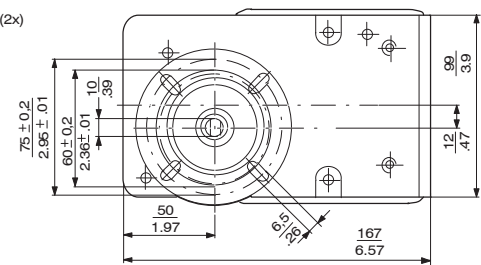
Housing dimensions
 Attachment kit without flange
 Code EBZG-PN



With flange
 Code EBZG-JN



mm
in



Rotation angle max 120°; torque requirement 14 Nm

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