

## **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 4-20 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
- Designed for stroke valves
- Specially suitable for small strokes by using a movement amplification mechanism
- 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 Ex ia IIB/IIC T4/T6 according to ATEX  
Explosion protection according to CU TR
- EMC in accordance with the international standards and laws (CE)

*Equipment should be installed, operated, serviced, and maintained only by qualified personnel.  
No responsibility is assumed by Schneider Electric for any consequences arising from the use of this material.*

## TECHNICAL DATA

### Input

Stroke . . . . . 5 to 100 mm with standard attachment kit for diaphragm actuators; for larger stroke please consult us

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 ripples . . . . .  $< 10 \% \text{ p.p.}$   
Supply voltage dependency . . negligible

### Response characteristic

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

### Ambient conditions

Operating conditions . . . . . acc. to IEC 654-1  
The device can be operated at a class Dx location.  
Ambient temperature  
Operation <sup>2)</sup> . . . . .  $-40 \dots 80 \text{ }^\circ\text{C}$  ( $-40 \dots 176 \text{ }^\circ\text{F}$ )  
Transport and storage . . . . .  $-40 \dots 80 \text{ }^\circ\text{C}$  ( $-40 \dots 176 \text{ }^\circ\text{F}$ )  
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 cable gland 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<sup>2</sup> (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.



**MODEL CODES SMI983**

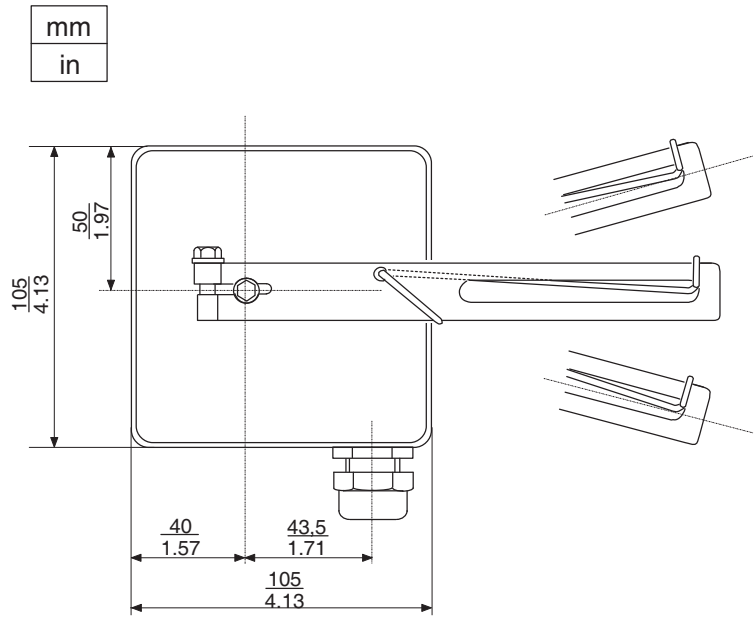
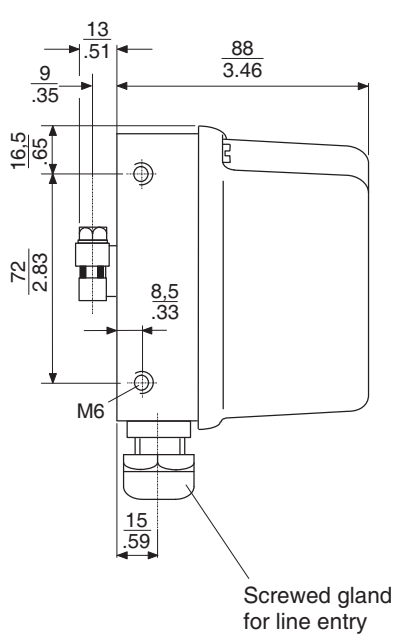
<b>Electrical Position transmitter</b>	<b>SMI983</b>					030715
<b>Output</b>						
Signal range 4 to 20 mA .....					-I	
<b>Cable Entry</b>						
M20 x 1.5 Plastic Cable Gland, Color Gray .....					7	
<b>Electrical certification</b>						
II 2 G Ex ia IIC T6 according to ATEX.....						EAA
EAC Approved for Intrinsic Safety .....						EAC
without .....						ZZZ
<b>Attachment kit</b>						
Order as auxiliary .....						N
<b>OPTIONS</b>						
Certificate EN 10204-2.1 - Certificate of compliance with the order .....						-1
Tag.No. Labeling: Stamped with weather resistant color.....						-G
Tag.No. Labeling: Stainless steel label fixed with wire .....						-L

**MODEL CODES ACCESSORIES**

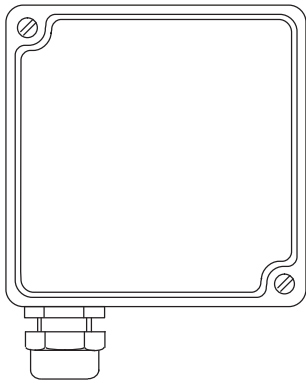
<b>Attachment kit</b>						<b>EBZG</b>
For diaphragm actuators with casting yoke acc. NAMUR(incl. standard Couple Lever) (for SRP981, SRI983, SMP981, SMI983, SGE985) .....						-GN
For diaphragm actuators with pillar yoke acc. NAMUR(incl. standard Couple lever) (for SRP981, SRI983, SMP981, SMI983, SGE985) .....						-FN
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 (e.g. for Petras actuators) (for SRP981, SRI983, SRI986, SMP981, SMI983, SGE985) .....						-NN
For rotary actuators, with flange (for SRP981, SRI983, SRI986, SMP981, SMI983, SGE985) .....						-JN
For rotary actuators acco VDI/VDE 3845, with shaft (for SRP981, SRI983, SRI986, SMP981, SMI983, SGE985) .....						-ZN
For Masoneilan type Camflex II (for SRP981, SRI983, SRI986, SMP981, SMI983, SGE985) .....						-RN
<b>Couple Lever / Cam</b>						
Standard (a = 72 mm) (for SRP981, SRI983, SRI986, SMP981, SMI983, SGE985) .....						-AN
Extended (a = 91 mm) (for SRP981, SRI983, SRI986, SMP981, SMI983, SGE985) .....						-BN
Inverse equal percentage cam for rotary actuators (for SRP981, SRI983, SRI986) .....						-CN
<b>Adapter</b>						<b>AD</b>
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**

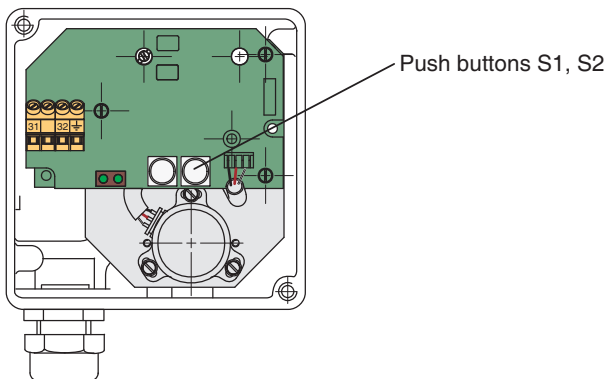
**Electrical Position transmitter**



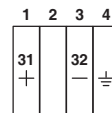
**Electrical Position transmitter, front view**



**Electrical Position transmitter, front view, cover removed**



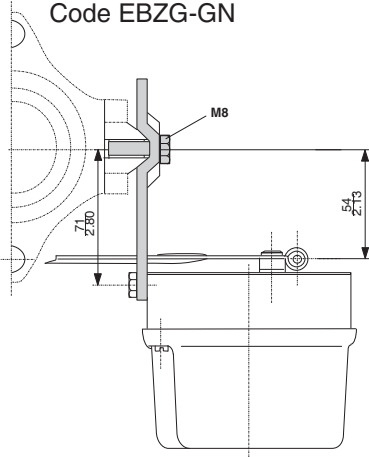
**Connecting block**



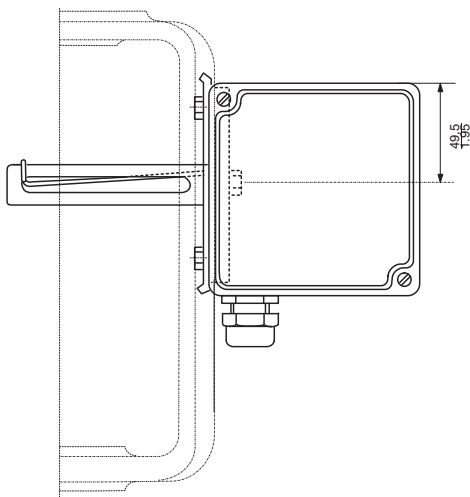
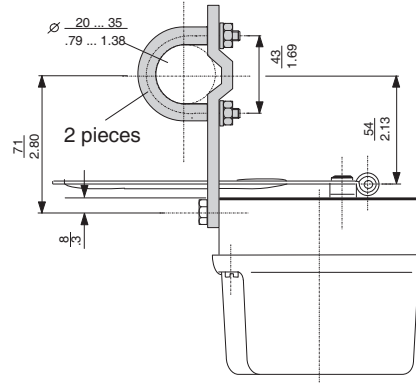
- 1 (31) Auxiliary energy 4-20 mA (+)**
- 2** Uninterrupted signal current measurement (+) with a low resistance ammeter ( $R_i < 10 \text{ Ohms}$ )
- 3 (32) Auxiliary energy 4-20 mA (-)** and uninterrupted signal current measurement (-)
- 4 Protective earth connection**

**ATTACHMENT KIT FOR DIAPHRAGM ACTUATORS**

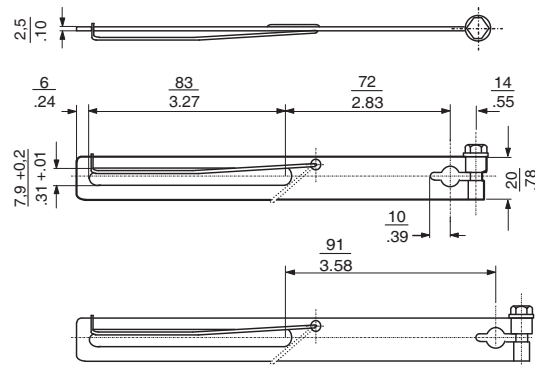
**Attachment to casting yoke**  
according to IEC 534-6 (NAMUR)  
Code EBZG-GN



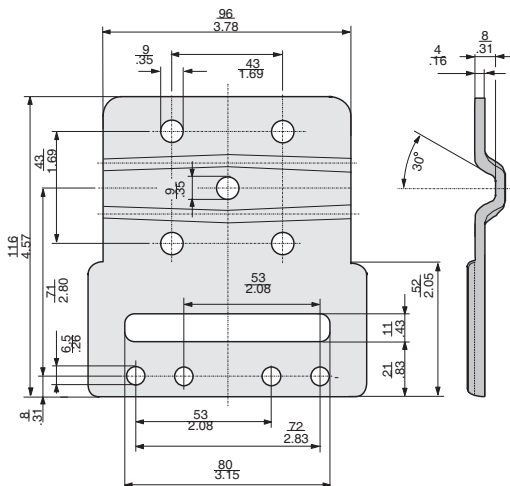
**Attachment to pillar yoke**  
according to IEC 534-6 (NAMUR)  
Code EBZG-FN



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

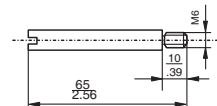


**Mounting bracket**  
according to IEC 534-6 (NAMUR)  
for Code EBZG-GN, FN



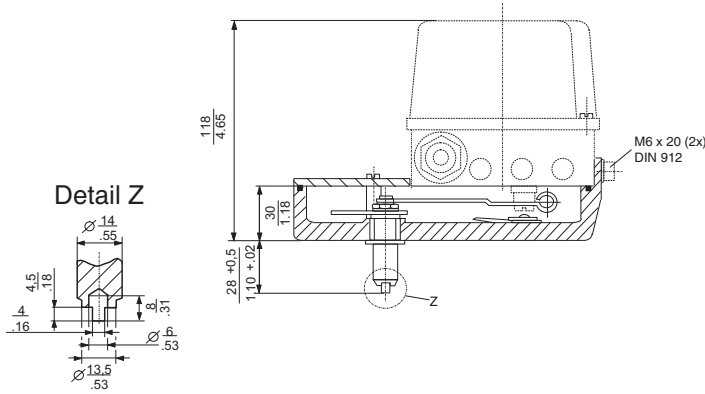
mm
in

**Carrier bolt**  
for attachment to valve stem

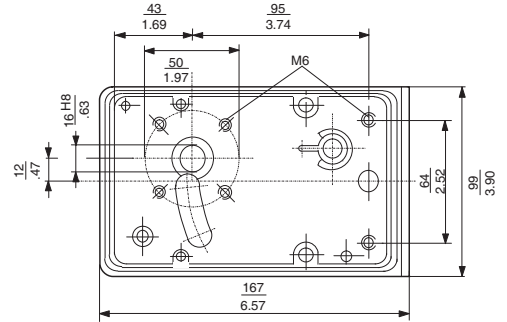


**ATTACHMENT KIT FOR ROTARY ACTUATORS**

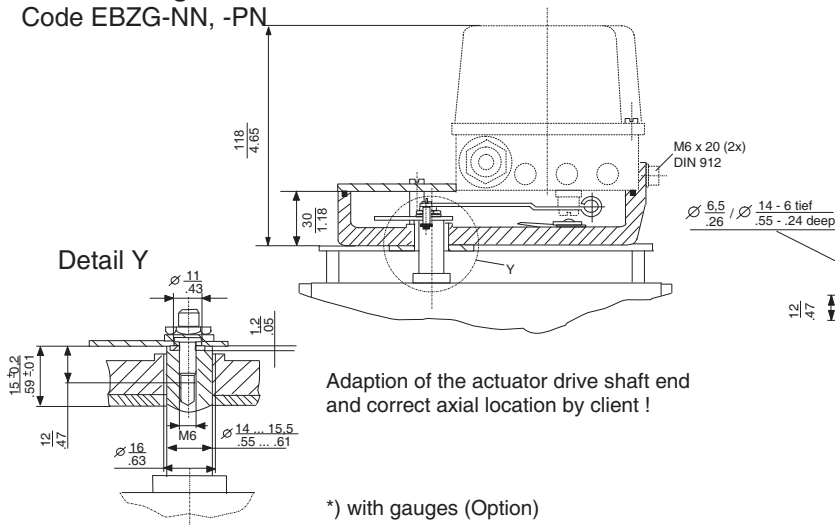
**With shaft**  
(according to VDI/VDE 3845)  
Code EBZG-ZN



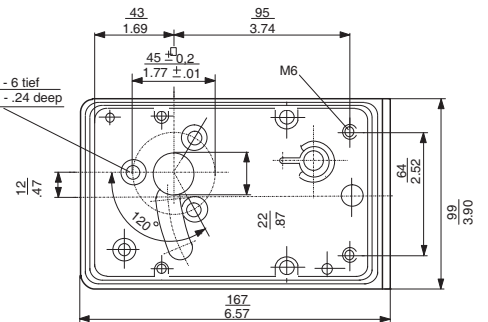
**Housing dimensions**  
Attachment kit with shaft  
resp. without flange  
Code EBZG-NN



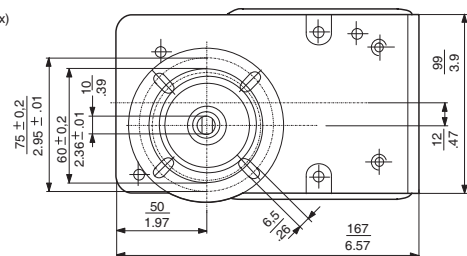
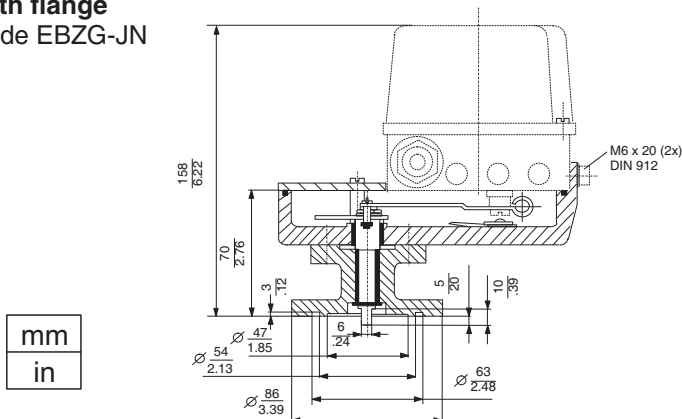
**Without flange**  
Code EBZG-NN, -PN



**Housing dimensions**  
Attachment kit without flange  
Code EBZG-PN

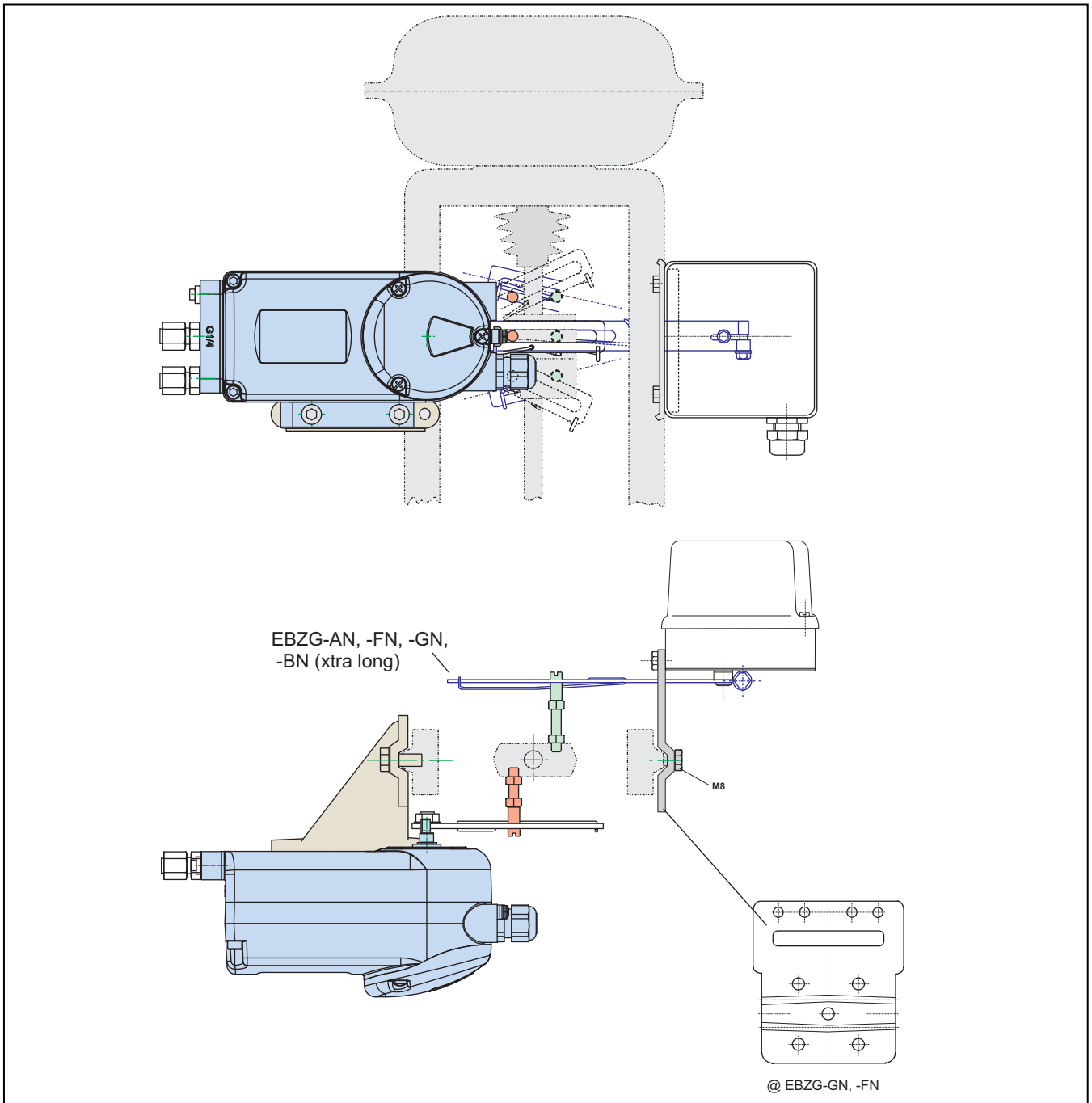


**With flange**  
Code EBZG-JN



Rotation angle max 120°; torque requirement 14 Nm

## TYPICAL APPLICATION



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