

SRI983 Electro-Pneumatic Positioner
- Explosion Proof / Intrinsically Safe



The SRI983 Positioner is for operation of pneumatic valve actuators from control systems and electrical controllers with electric control signals. It is used to reduce the adverse effects of valve friction, for higher thrust and shorter positioning time.

FEATURES

- Independent adjustment of stroke range and zero
- Adjustable amplification and damping
- Split range up to 3-fold possible
- One version for 4-20 mA input
- Supply pressure up to 6 bar (90 psig)
- Low vibration effect in all directions
- Mounting according to IEC 534, part 6 (NAMUR)
- Rotation adapter for angles up to 120 °
- Mounting onto any linear or rotary actuator
- Explosion protection:
II 2 G Ex d and II 1 G Ex ia according to ATEX, or explosion proof, intrinsic safety acc. to FM and CSA, and 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**

Signal	4-20 mA
Input resistance	< 260 Ohm
Stroke range	8 to 100 mm (0.3 to 4 in)
Angular range linear	30 ° to 120 °
Equal percentage	90 °; from 70 ° linear

Output

Output to actuator 0 to 100% supply air pressure

Supply

Supply air pressure 1.4 to 6 bar (20 to 90 psig)

Air supply according to ISO 8573-1

- Solid particle size and density class 2
- Oil rate class 3
- Pressure dew point 10 K under ambient temperature

The use of filter regulator for air supply of positioner is strongly recommended. It reduces the air pressure to actuator's maximum pressure and keeps it constant.

Ambient conditions

Ambient temperature -40 °C (-40 °F) to ...
(see page 3)

Relative humidity up to 100 %

Operating conditions
as per IEC 654-1 The device can be operated
at a class Dx location

Transport and storage
temperature -40 to 80 °C (-40 to 176 °F)

Protection class
pneumatic part IP 54, optional IP65

electrical part
ATEX IP 65
FM+CSA NEMA 4X

Electromagnetic compatibility EMC

Operating conditions industrial environment

Immunity according to
- NAMUR recommendation . NE21 fulfilled
- EN61 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 regulation not applicable

Response characteristic¹⁾

Amplification	adjustable
Sensitivity	< 0.1% F.S.
Non-linearity (terminal based adjustment)	< 1.0% F.S.
Hysteresis	< 0.5% F.S.
Supply air dependency	< 0.3% / 0.1 bar (1.5 psi)
Temperature effect	< 0.5% / 10 K

Air consumption

Supply air pressure air consumption	
single acting	
1.4 bar (20 psig)	200 ln/h (7.1 scfh)
3.0 bar (45 psig)	350 ln/h (12.4 scfh)
6.0 bar (90 psig)	600 ln/h (21.2 scfh)
double acting	
1.4 bar (20 psig)	300 ln/h (10.6 scfh)
3.0 bar (45 psig)	500 ln/h (17.7 scfh)
6.0 bar (90 psig)	950 ln/h (33.5 scfh)

Air output

Load effect ²⁾	-3 % for delivery flow 2 350 ln/h (83 scfh)
	+3 % for exhausted flow 1 900 ln/h (67 scfh)

Capacity at max. deviation	
supply air pressure air output capacity	
1.4 bar (20 psig)	2 700 ln/h (95 scfh)
2.0 bar (30 psig)	3 500 ln/h (124 scfh)
4.0 bar (60 psig)	5 500 ln/h (194 scfh)
6.0 bar (90 psig)	7 500 ln/h (265 scfh)

Materials

Base plate, manifold, I/P-housing,
rotation adapter Aluminum (Alloy No. 230)
finished with DD-varnish
Color gray or blue

Cover impact resistant polyester
Color blue

All moving parts of
feedback system 1.4305 / 1.4571
Mounting bracket 1.4301

Weight

Single acting	
without gauges	approx. 1.5 kg (3.3 lbs)
with gauges	approx. 1.7 kg (3.7 lbs)
Double acting approx. 1.7 kg (3.7 lbs)	
attachment kit	
for diaphragm actuators	approx. 0.3 kg (0.6 lbs)
for rotary actuators	approx. 0.5 kg (1.1 lbs)

Data measured according to VDI/VDE 2177

- 1) Data based on following parameters:
stroke 30 mm (1.28 in), range spring FES 628/1, feedback lever
effective length 117.5 mm (4.63 in), max. amplification,
supply air pressure 3 bar (45 psig)
- 2) Measured at air supply 1.4 bar (20 psig) and 50 % of signal range

Connection

Pneumatic.....	Female threads Q 1/4-18 NPT acc. to DIN 45 141
Electric	
Line entry	
Explosion protection acc. to ATEX Ex d.....	Female thread M20 x 1.5
acc. to FM and CSA	Female thread Q1/2-14NPT
Note the section "Safety requirements"	
Terminals	Screw terminals

Mounting

Type of mounting.....	for attaching to diaphragm actuators acc. IEC 534-6 (NAMUR)
.....	for attaching to rotary actuators
Mounting orientation.....	any

Gauges

Indicating range	
Internal I/P-output	0 to 1.6 bar (0 to 23 psig)
Output	0 to 10 bar (0 to 150 psig)
Error limit	class 1.6

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.

Electrical Classification ^{1) 2)}**Type of protection "flameproof", ATEX**

Type of protection	II 2 G Ex d IIB+H2 T4
Certificate of conformity	FM 14 ATEX 0022 X
Ta = -40 °C to +75 °C	

Type of protection "Intrinsically Safe", ATEX

Type of protection	II 1 G Ex ia IIC T4
Certificate of conformity	FM 14 ATEX 0022 X
Ta = -55 °C to +85 °C	

Type of protection "dust", ATEX

Type of protection	II 2 D Ex tD A21 IP65 T85 °C
Certificate of conformity	FM 14 ATEX 0022 X
Ta = -40 °C to +75 °C	

Type of protection "non incandive", ATEX

Type of protection	II 3 G Ex nA nL IIC T6
Certificate of conformity	FM 14 ATEX 0023 X
Ta = -55 °C to +85 °C	
Type of protection	II 3 G Ex nL IIC T4
Certificate of conformity	FM 14 ATEX 0023 X
Ta = -55 °C to +85 °C	

In the case of operation of the positioner in explosion hazardous areas with an ambient temperature of more than 60 °C, it must be ensured that the connecting cable and cable entry meet the increased thermal demands (max. ambient temperature plus 10 K).

Electrical connection with cable and wiring entry glands in accordance with special certification to explosion proof classification EN 50 018, using suitable cable and wiring or with conduit in accordance with special certification to explosion proof classification EN 50 018. A spark barrier sealing compound must be applied directly at the point of entry.

See Certificate of Conformity EX EVE0103 A

Explosion protection according to FM

IS / I, II, III / 1 / ABCDEFG / T4
I / 0 / A Ex ia IIC / T4
NI / I / 2 / ABCD / T4
S / II, III / 2 / EFG T4
I / 2 / IIC / T4
XP / I / 1 / BCD / T6
DIP / II, III / 1 / EFG / T6
I / 1 / A Ex d IIB+H2 / T6
21 / A Ex tD / T85 °C
Type 4X, IP65

Explosion protection according to CSA

IS / I, II, III / 1 / ABCDEFG / T4
I / 0 / Ex ia IIC / T4
NI / I / 2 / ABCD / T4
II, III / 2 / EFG / T4
XP / I / 1 / BCD / T6
DIP / II, III / 1 / EFG / T6
I / 1 / Ex d IIB+H2 / T6
Type 4X, IP65

1) With appropriate order only

2) National requirements have to be observed

MODEL CODES SRI983

160419

Electro-pneumatic Positioner	SRI983							
Version								
Single Acting.....		-B						
Double Acting.....		-C						
Input								
Signal Range 4-20 mA.....			-I					
Mode of Action								
Increasing Input Increases Output.....					D			
Increasing Input Decreases Output.....					R			
Gauges								
Without Gauges.....						L		
Two Built-In Gauges (bar/psi).....(a)						M		
Electrical Certification								
II 2G Ex d IIB+H2 T6 - II 2D Ex tD A21 IP65 T85 °C.....								EDZ
II 1G Ex ia IIC T4 - II 2D Ex tD A21 IP65 T85 °C.....								E1Z
II 3G Ex nA nL IIC T6 - II 3G Ex nL IIC T4.....								E3Z
FM Approved For								
IS / I, II, III / 1 / ABCDEFG / T4; I / 0 / AEx ia IIC / T4; NI / I / 2 / ABCD / T4;								
S / II, III / 2 / EFG T4; XP / I / 1 / BCD / T6; DIP / II, III / 1 / EFG / T6;								
I / 1 / AEx d IIB+H2 / T6; II, III / 1 / AEx tD / 21 / T85 °C; Type 4X, IP65.....								
								FDZ
CSA Approved For								
IS / I, II, III / 1 / ABCDEFG / T4; I / 0 / Ex ia IIC / T4; NI / I / 2 / ABCD / T4;								
S / II, III / 2 / EFG T4; XP / I / 1 / BCD / T6; DIP / II, III / 1 / EFG / T6;								
I / 1 / Ex d IIB+H2 / T6; Type 4X, IP65.....								
								CDZ
EAC Approved For Explosion Proof and Intrinsically Safe.....								
								EAC
Pneumatic Connection								
Rear Facing NPT 1/4, Prepared For Linear Actuators.....								N
Down Facing NPT 1/4, Prepared For Rotary Actuators.....								Q
Options								
Certificate EN 10204-2.1 - Certificate of compliance with the order.....								-1
New Generation SRI983.....(b)								-N
Protection Class IP65, made with non return valve exhaust.....								-FA
Tag No. Labeling								
Stamped With Weather Resistant Color.....								-G
Stainless Steel Label Fixed With Wire.....								-L

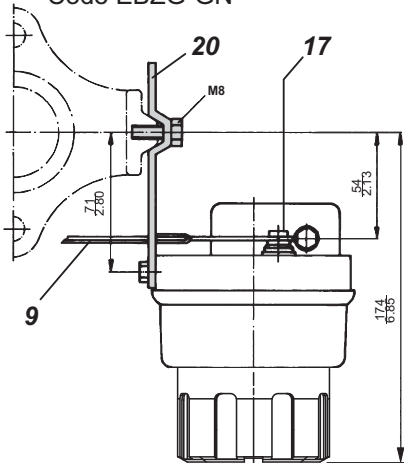
(a) Only available with Version -B
 (b) ALWAYS (mandatory)

MODEL CODES Accessories

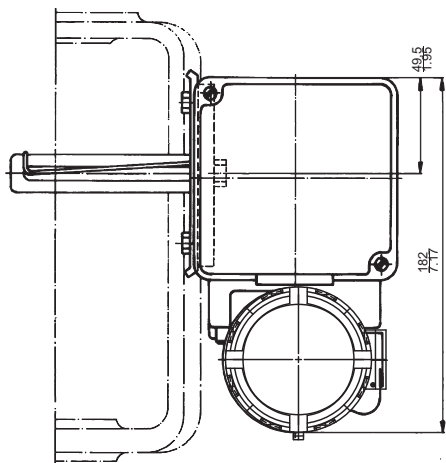
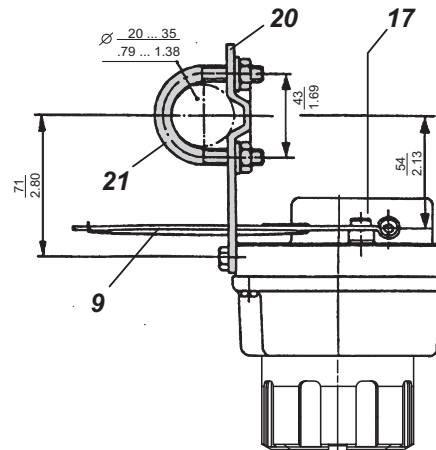
Attachment Kit		EBZG
For diaphragm actuators with casting yoke acc. NAMUR. (incl. standard Couple Lever) (for SRP981, SRI983, ...)	.....	-GN
For diaphragm actuators with pillar yoke acc. NAMUR. (incl. standard Couple lever) (for SRP981, SRI983, ...)	.....	-FN
For rotary actuators, without flange, 3 drill 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, ...)	.....	-NN
For rotary actuators, with flange (for SRP981, SRI983 , SRI986, SMP981, SMI983, SGE985)	.....	-JN
For rotary actuators acc. to 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
For Masoneilan type Sigma F (for SRI986, SRP981, SRI983)	.....	-SN
For Honeywell Air-O-Motor Type 05 (for SRI986, SRP981, SRI983)	.....	-SA
For Masoneilan type 37/38, Fisher Elliott type 656, 667 (for SRP981, SRI983 , SGE985, SMI983, SMP981)	.....	-TN
For Guide type P (for SRP981, SRI983)	.....	-UN
For Masoneilan type 87/88 (for SRP981, SRI983 , SMP981, SMI983, SGE985)	.....	-EN
For Masoneilan VariPak (for SRP981, SRI983 , SGE985, SMI983, SMP981)	.....	-MN
For IAL actuators (for SRP981, SRI983 , SGE985, SMI983, SMP981)	.....	-VN
Brackets VDI/VDE 3845 (A = 130mm/5.12 in; B = 50mm/1.97 in) (for SRP981, SRI983 , SRI986, SGE985, ...)	.....	-C3
Brackets VDI/VDE 3845 (A = 80mm/3.15 in; B = 30mm/1.18 in) (for SRP981, SRI983 , SRI986, SGE985, ...)	.....	-C2
Brackets VDI/VDE 3845 (A = 80mm/3.15 in; B = 20mm/0.79 in) (for SRP981, SRI983 , SRI986, SGE985, ...)	.....	-C1
Couple Lever / Cam		EBZG
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
Spring Set		FESG
Range-Springs (4 pc.) (for SRP981, SRI983 , SRI986)	.....	-FN

ATTACHMENT KIT FOR DIAPHRAGM ACTUATORS

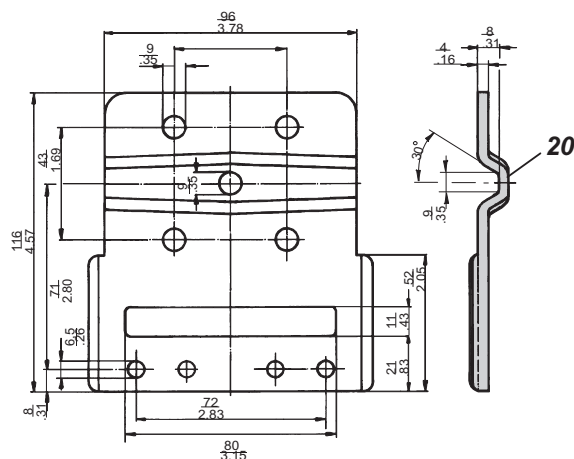
Attachment to casting yoke
according to IEC 534-6 (NAMUR)
Code EBZG-GN



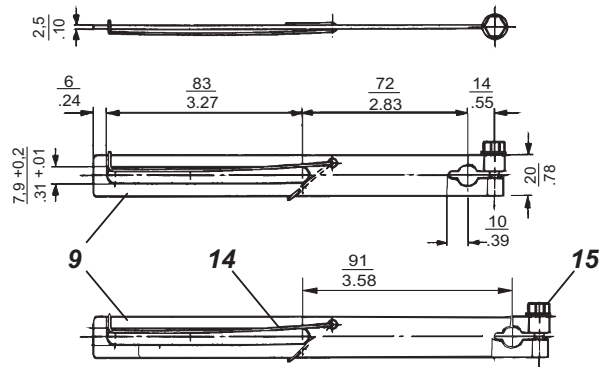
Attachment to pillar yoke
according to IEC 534-6 (NAMUR)
Code EBZG-FN



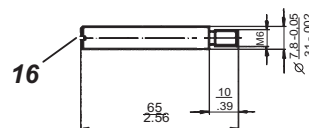
Mounting bracket
according to IEC 534-6 (NAMUR)
for Code EBZG-GN, FN



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



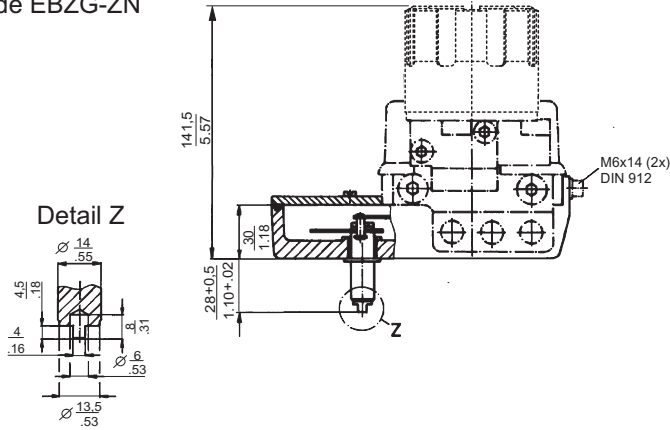
Carrier bolt
for attachment to valve stem



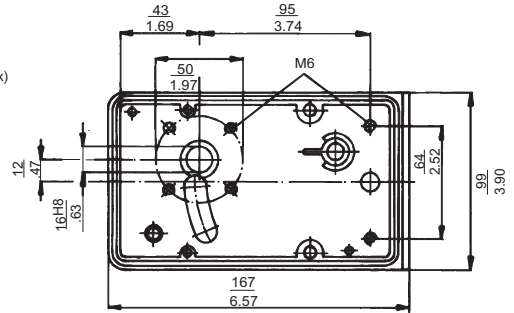
mm
in

ATTACHMENT KIT FOR ROTARY ACTUATORS

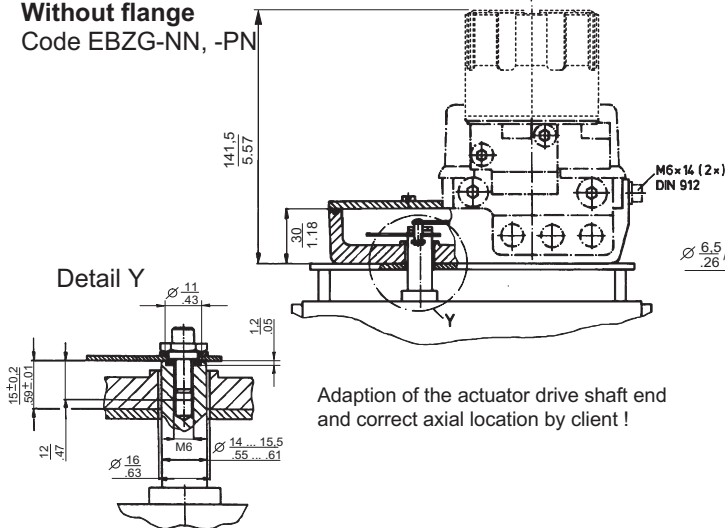
With shaft
(according to VDI/VDE 3845)
Code EBZG-ZN



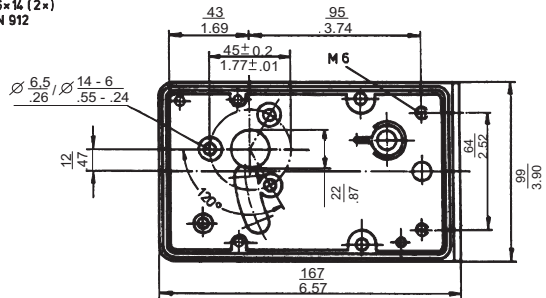
Housing dimensions
Attachment kit with shaft Code EBZG-ZN
resp. without flange Code EBZG-NN



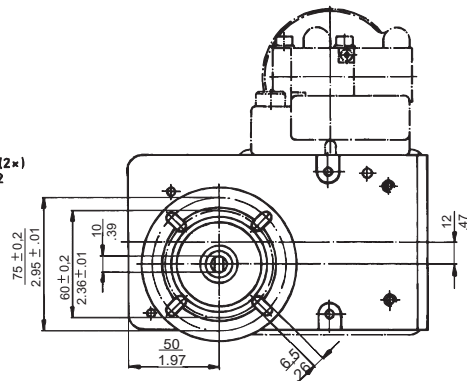
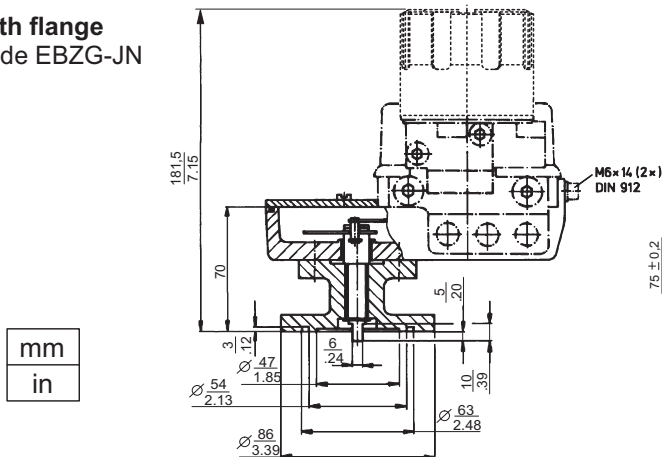
Without flange
Code EBZG-NN, -PN



Housing dimensions
Attachment kit without flange
Code EBZG-PN

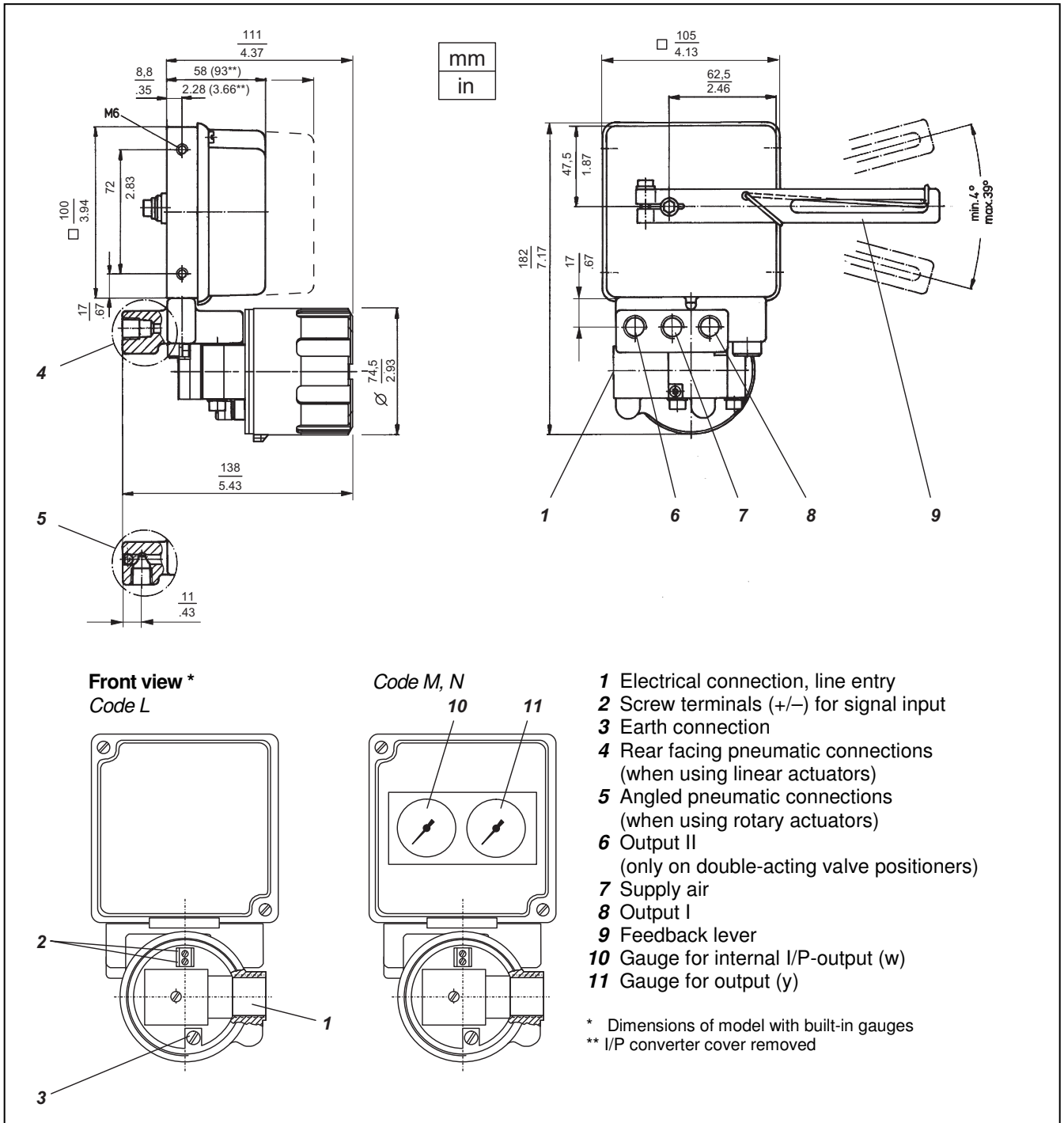


With flange
Code EBZG-JN



Rotation angle max 120°; torque requirement 14 Nm

DIMENSIONS, CONNECTIONS



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