

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
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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
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 l/h (7.1 scfh)
3.0 bar (45 psig)	350 l/h (12.4 scfh)
6.0 bar (90 psig)	600 l/h (21.2 scfh)
double acting	
1.4 bar (20 psig)	300 l/h (10.6 scfh)
3.0 bar (45 psig)	500 l/h (17.7 scfh)
6.0 bar (90 psig)	950 l/h (33.5 scfh)

Air output

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

Capacity at max. deviation	
supply air pressure air output capacity	
1.4 bar (20 psig)	2 700 l/h (95 scfh)
2.0 bar (30 psig)	3 500 l/h (124 scfh)
4.0 bar (60 psig)	5 500 l/h (194 scfh)
6.0 bar (90 psig)	7 500 l/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 Q1/2-14 NPT
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 T6
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

Electro-pneumatic Positioner	SRI983							170715
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	
Intrinsically safe and explosion proof.....(d).....							BRZ	
EAC Approved For Explosion Proof and Intrinsically Safe...(d)							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	
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)
(d) Not released

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**

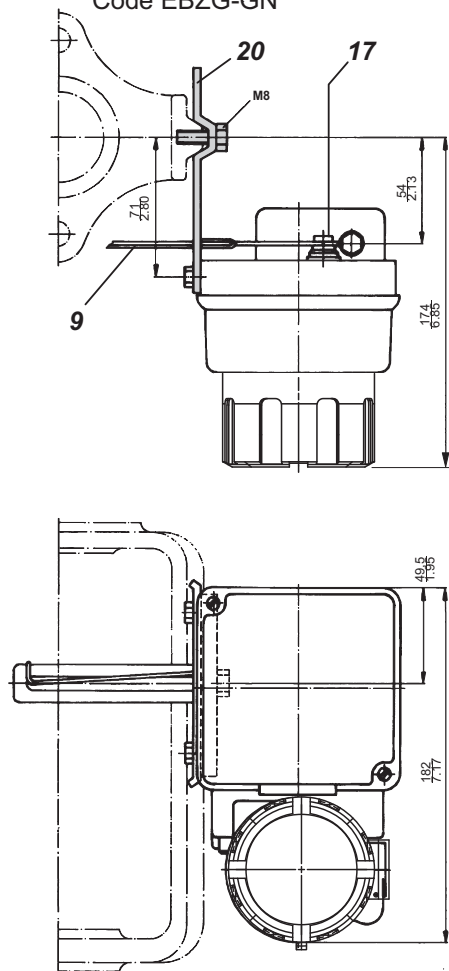
Standard (a = 72 mm) (for SRP981, SRI983 , SRI986, SMP981, SMI983, SGE985)	-AN
Extended (a = 91 mm) (for SRP981, SRI983 , SRI986, SMP981, SMI983, SGE985)	-BN
Inverse equal percentage cam for rotary actuators (for SRP981, SRI983 , SRI986)	-CN

Spring Set**FESG**

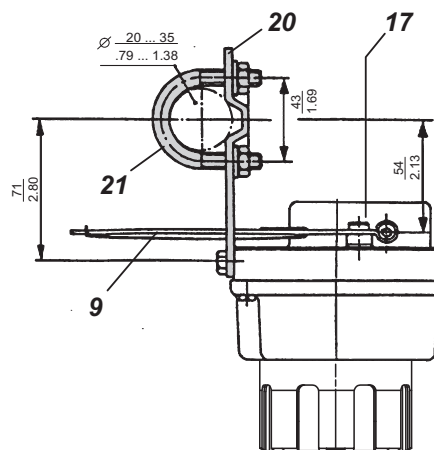
Range-Springs (4 pc.) (for SRP981, SRI983 , SRI986)	-FN
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ATTACHMENT KIT FOR DIAPHRAGM ACTUATORS

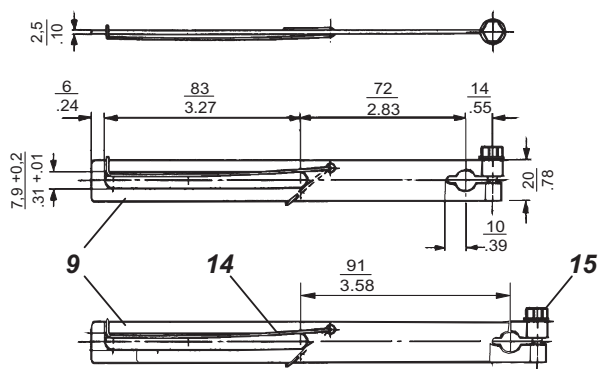
Attachment to casting yoke
according to IEC 534-6 (NAMUR)
Code EBZG-GN



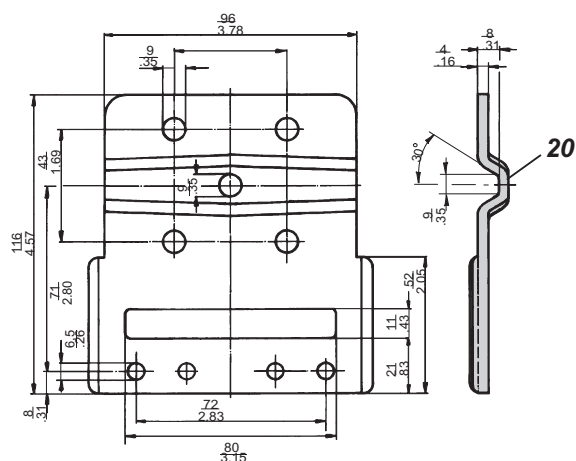
Attachment to pillar yoke
according to IEC 534-6 (NAMUR)
Code EBZG-FN



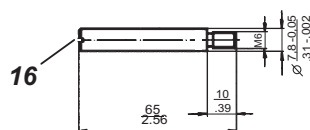
Feedback lever
Code EBZG-AN, -FN, -GN
Code EBZG-BN (extended version)



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



Carrier bolt
for attachment to valve stem



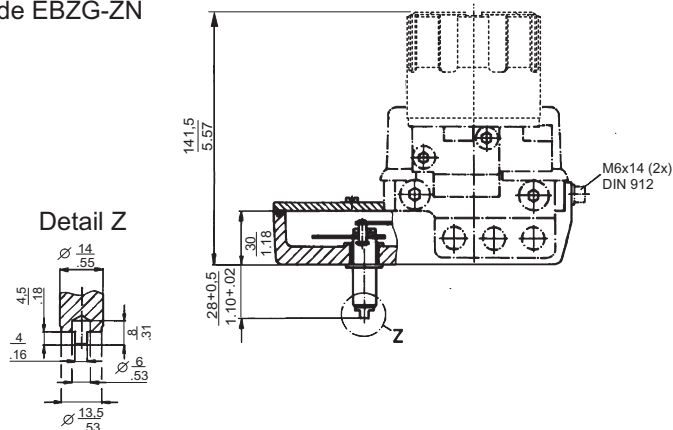
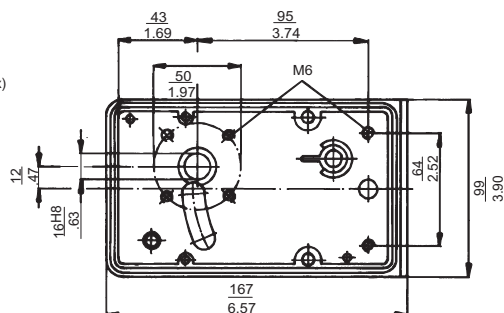
mm
in

ATTACHMENT KIT FOR ROTARY ACTUATORS

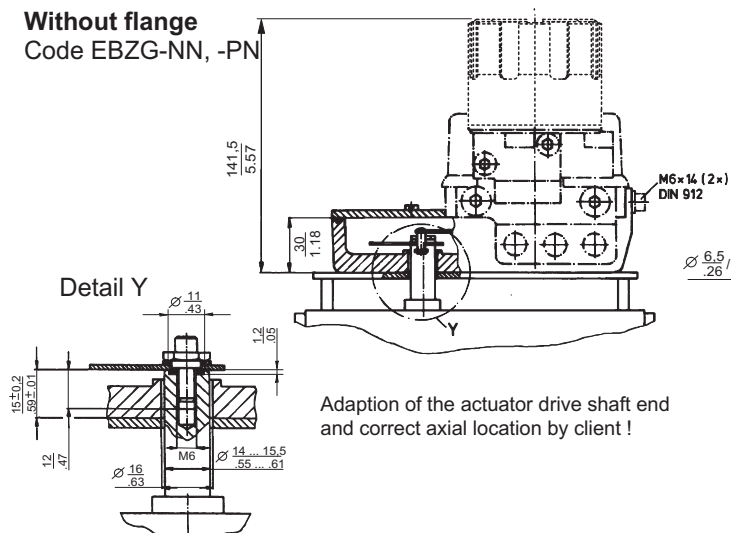
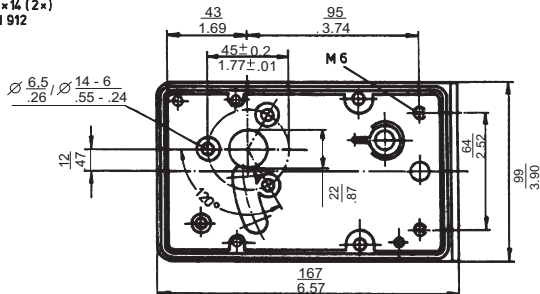
With shaft

(according to VDI/VDE 3845)

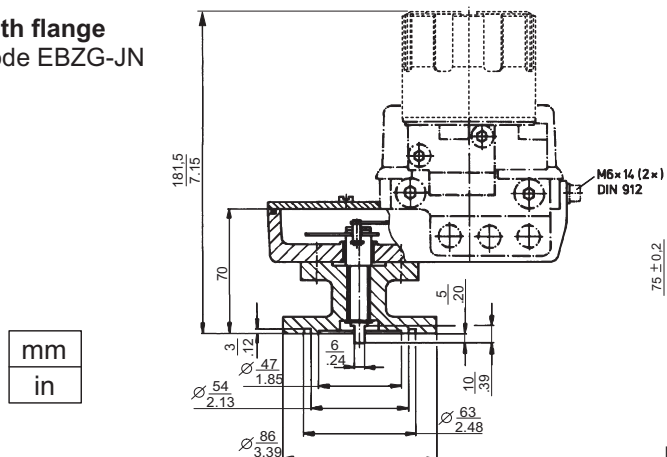
Code EBZG-ZN

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

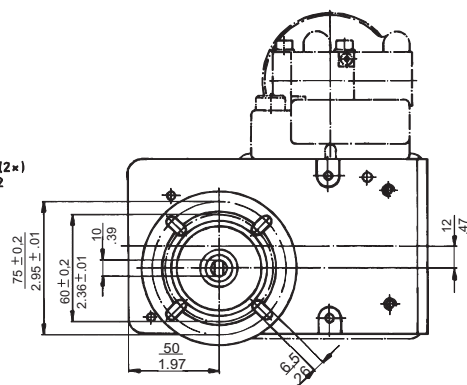
Code EBZG-NN, -PN

**Housing dimensions**Attachment kit without flange
Code EBZG-PNAdaption of the actuator drive shaft end
and correct axial location by client !**With flange**

Code EBZG-JN

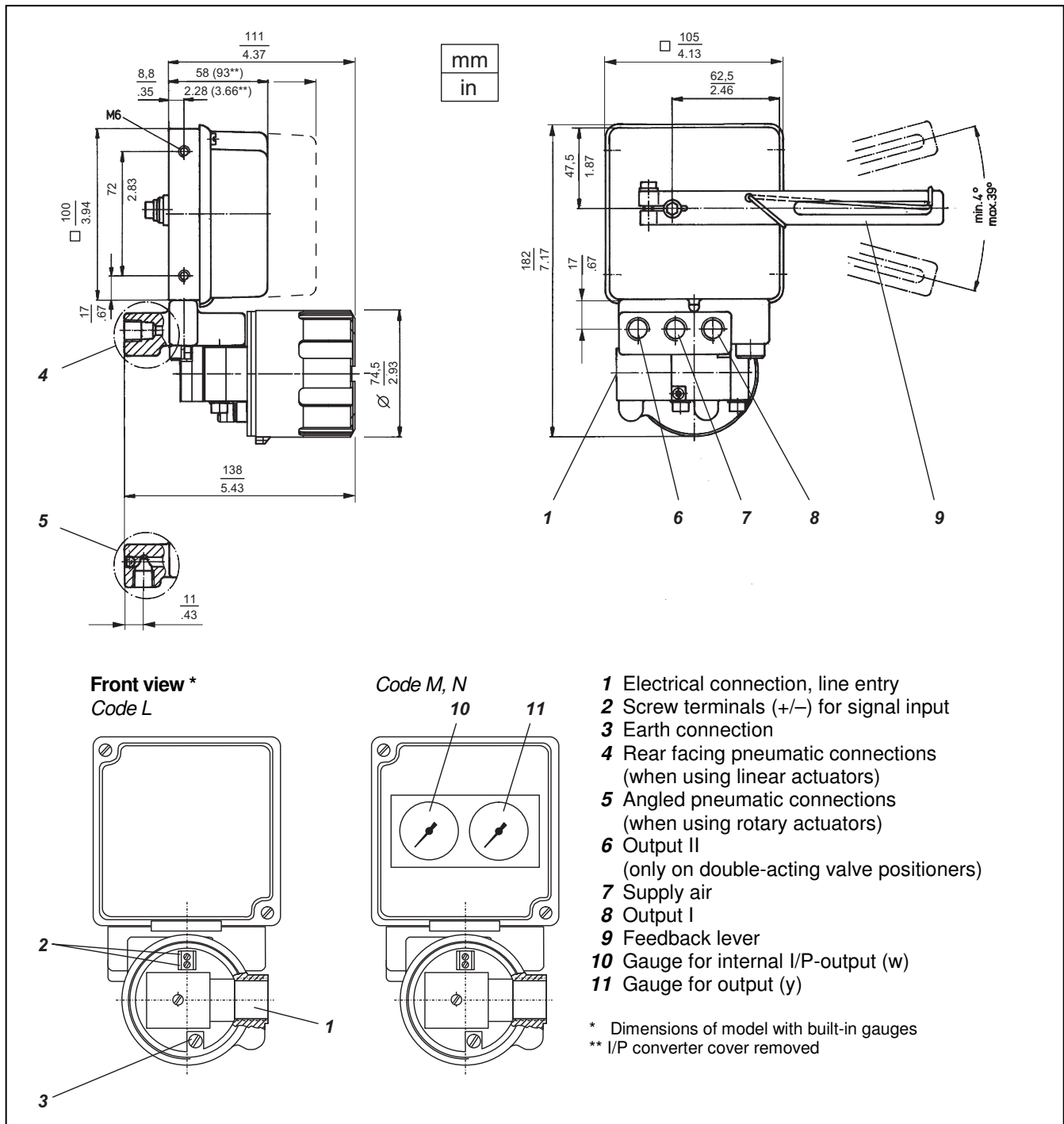


mm
in



Rotation angle max 120°; torque requirement 14 Nm

DIMENSIONS, CONNECTIONS



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