

SRI983 Electro-Pneumatic Positioner - explosion proof or EEx d version



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 0 to 20 mA and 4 to 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°
- Explosion protection:
EEx d according to CENELEC or
explosion proof according to FM and CSA
- EMC in accordance with the international standards and laws (CE)

FUNCTIONAL SPECIFICATIONS**Input**

Signal range	0 ... 20 mA / 4 ... 20 mA
Input resistance	260 Ω
Stroke range	8 ... 100 mm (0.3 ... 4 in)
Angular range	
linear	30 ° ... 120 °
equal percentage . . .	90 °; from 70 ° linear

Output

Output to actuator	0 ... 100 % supply air pressure
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Supply

Supply air pressure	1.4 ... 6 bar (20 ... 90 psig)
Supply air	free of oil, dust, water according to IEC 654-2

Ambient conditions

Ambient temperature	-20 °C (-4 °F) to ... (see page 3)
Relative humidity	100 %
Operating conditions as per IEC 654-1	The device can be operated at a class Dx location
Transport and storage temperature	-40 ... 80 °C (-40 ... 176 °F)
Protection class	
pneumatic part	IP 54
electrical part	
CENELEC	IP 65
FM + CSA	NEMA 4

Electromagnetic compatibility EMC

Operating conditions	industrial environment
Immunity according to EN 50 082-2	fulfilled
Emission according to EN 55 011	fulfilled

CE marking

Electromagnetic compatibility	89/336/EWG
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PERFORMANCE SPECIFICATIONS**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 _n /h (7.1 scfh)
3.0 bar (45 psig)	350 l _n /h (12.4 scfh)
6.0 bar (90 psig)	600 l _n /h (21.2 scfh)
double acting	
1.4 bar (20 psig)	300 l _n /h (10.6 scfh)
3.0 bar (45 psig)	500 l _n /h (17.7 scfh)
6.0 bar (90 psig)	950 l _n /h (33.5 scfh)

Air output

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

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

Data measured according to VDI/VDE 2177

- 1) Data based on the 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 the signal range

PHYSICAL SPECIFICATIONS

Materials

Base plate, manifold,
I/P-housing,
rotation adapter Aluminium (Alloy No. 230)
finished with DD-varnish
grey blue
Cover. impact resistant polyester
grey blue
All moving parts of
feedback system Material No. 1.4305 / 1.4571
Mounting bracket Material No. 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)

Connection

Pneumatic Female threads
Q 1/4-18 NPT
acc. to DIN 45 141
Electric
Line entry
Explosion protection
acc. CELENEC Female thread M 20 x 1.5
acc. FM and CSA Female thread
Q 1/2-14 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 ... 1.6 bar (0 ... 23 psig)
Output 0 ... 10 bar (0 ... 150 psig)
Error limit class 1.6

SAFETY REQUIREMENTS

Safety. as per IEC 1010-1
safety class III

Explosion protection type EEx d

Type of protection EEx d IIC T4 / T5 / T6
Certificate of conformity. BVS 93.C.2023 X

For use in hazardous areas in circuits with the
following values:

Nominal voltage 8 V
Nominal current. 20 mA
Ambient temperature
Temperature class T6 up to 60 C (140 F)
T5 up to 70 C (158 F)
T4 up to 85 C (185 F)
Short- circuit current up to 50 mA

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

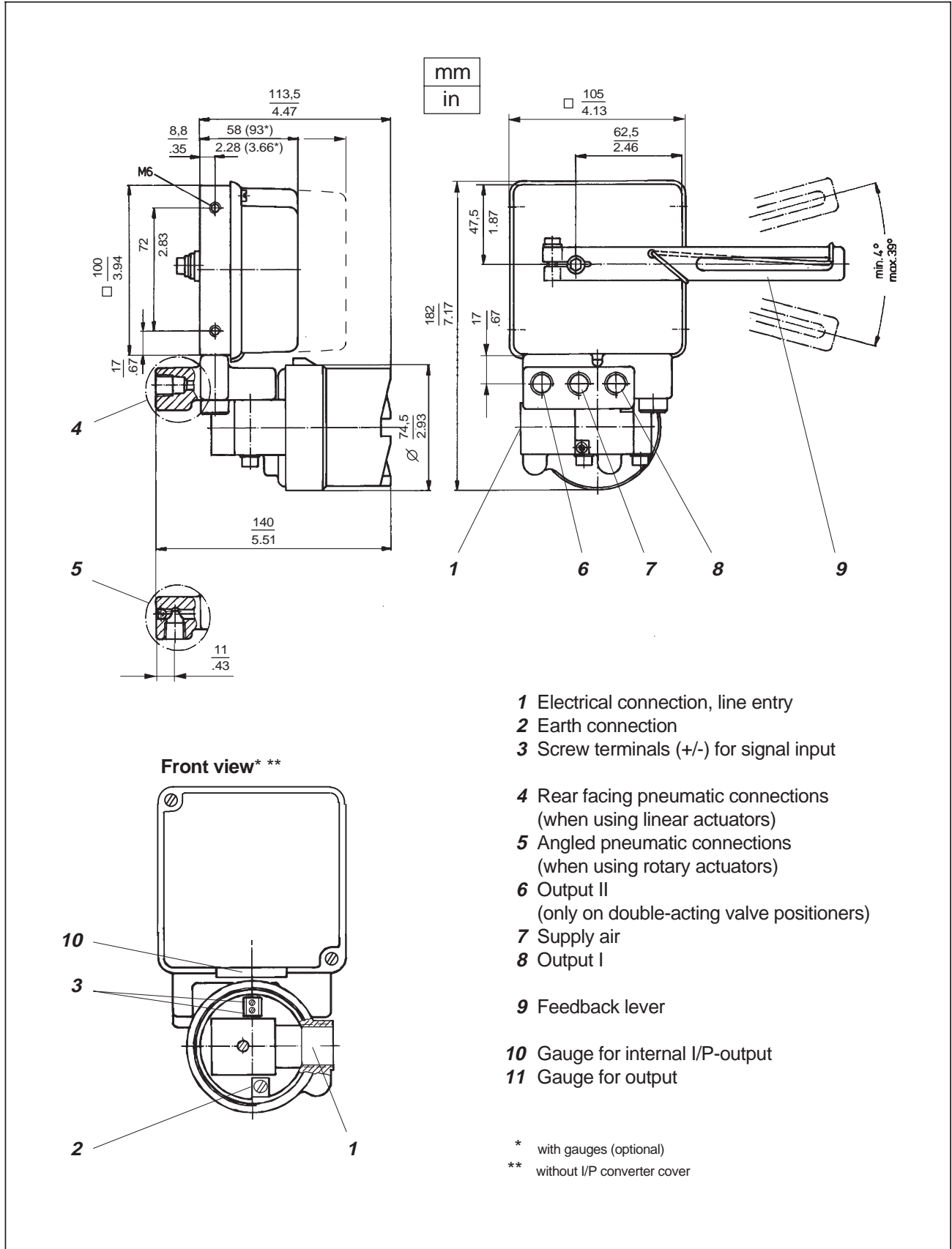
**Explosion protection according to FM and CSA
Standards**

Explosionproof, Class I + II, Division 1, Groups B-G.

MODEL CODES

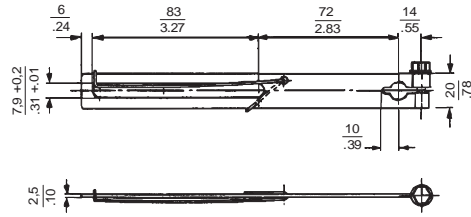
SRI983 Electro-pneumatic Positioner
Version -B Single acting -C Double acting
Input I Signal range 0/4 - 20 mA
Mode of action D Increasing input increases output R Increasing input decreases output
Gauges L without gauges M two built-in gauges [bar/PSI] (a) N two built-in gauges [kPa/PSI] (a)
Electrical certification EDZ EEx d IIC T6 FDZ FM approved for explosionproof Class I, Division 1, Groups B, C, D dust ignition proof Class II, Division 1, Groups E, F, G hazardous locations CDZ CSA approved for explosionproof Class I, Division 1, Groups B, C, D dust ignition proof Class II, Division 1, Groups E, F, G hazardous locations
Attachment kit N without, rear facing connections NPT 1/4, prepared for linear actuators Q without, down facing connections NPT 1/4, prepared for rotary actuators G for actuators with casting yoke acc. NAMUR F for actuators with pillar yoke acc. NAMUR P for rotary actuators, without flange, 3 drill holes 6.5 mm M for rotary actuators, without flange, 4 threads M6 J for rotary actuators, with flange Z for rotary actuators, with shaft
Optional features -B Inverse, equal percentage cam for rotary movements
SRI983
Example Model Code: SRI983 -B I D L EDZ N
Footnote (a) only available with version -B

DIMENSIONS, CONNECTIONS

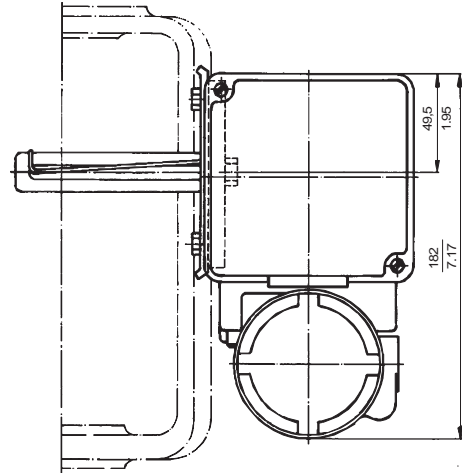


**ATTACHMENT KIT
FOR DIAPHRAGM ACTUATORS**

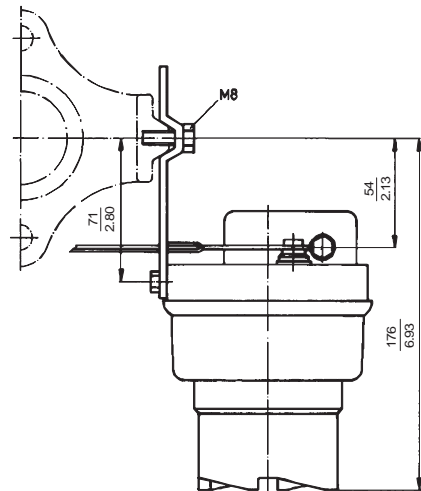
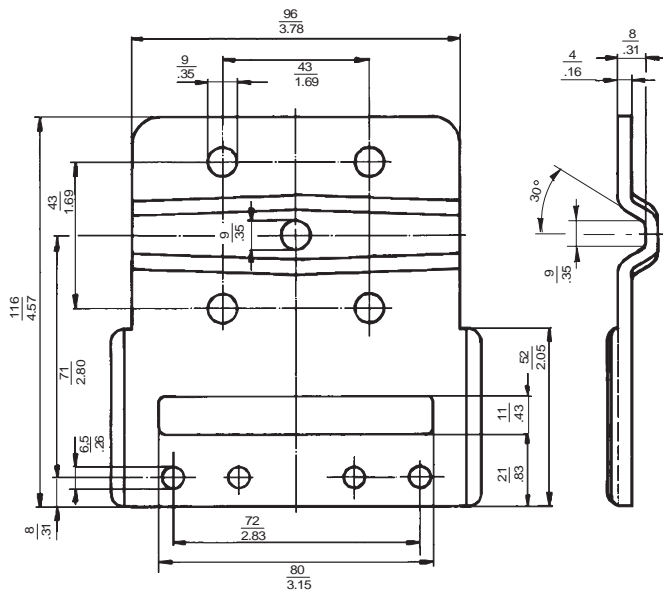
Feedback lever



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

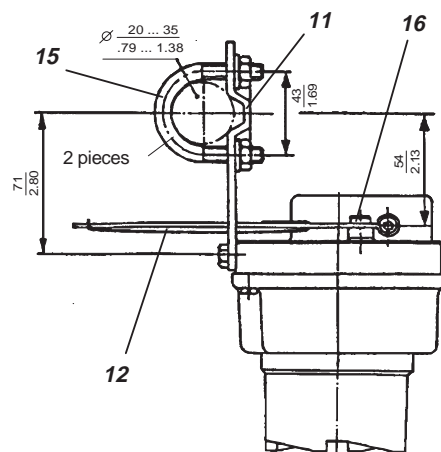


**Mounting bracket
according to IEC 534-6 (NAMUR)**

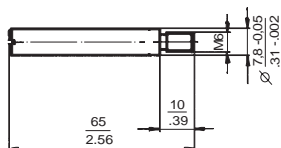


mm
in

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



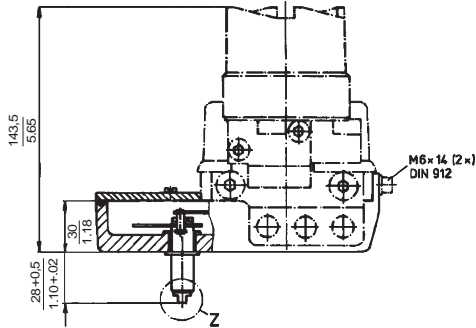
**Carrier bolt
for attachment to valve stem**



**ATTACHMENT KIT
FOR ROTARY ACTUATORS**

With shaft

(in accordance with VDI/VE 3845)

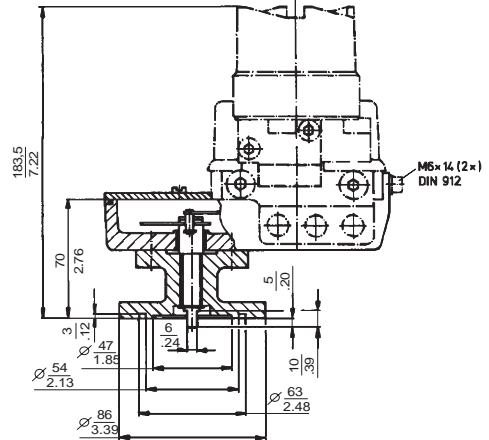
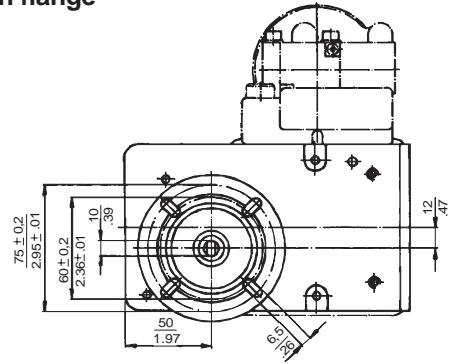


Detail Z



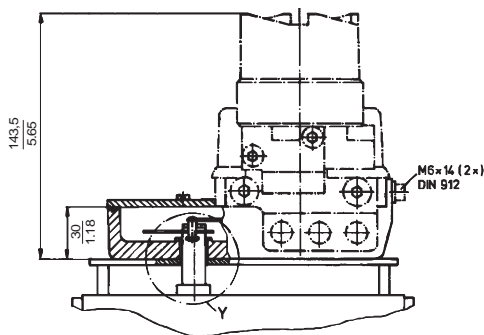
mm
in

With flange

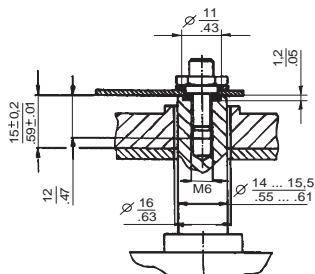


Rotation angle max. 120°; torque requirement .14 Nm

Without flange



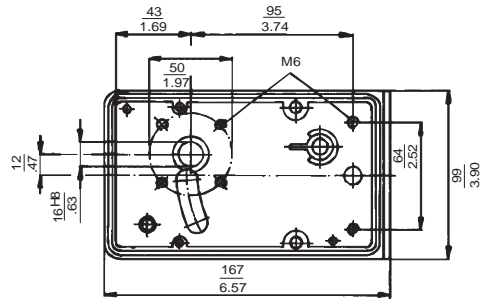
Detail Y



Adaption of the actuator drive shaft end and correct axial location by client!

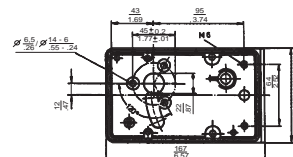
Housing dimensions

Attachment kit with shaft resp. without flange



Housing dimensions

Attachment kit without flange



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