

High Precision Stroke Reading Cylinder Non-rotating Piston Type

CEP1 Series

ø12, ø20



(Note) CE-compliant: When connecting to a multi-counter (CEU5□□-D, power supply voltage 24 VDC). Refer to the multi-counter operation manual for details.

How to Order

CEP1 B 12 - 50 - M9BW -

High precision stroke reading cylinder

Mounting type

B	Direct mounting rod side tapped type
L	Foot type
F	Rod side flange type

Bore size

12	ø12 mm equivalent
20	ø20 mm equivalent

Standard cylinder stroke (mm)
Refer to "Standard Stroke" on page 648.

Connector

Nil	With connector
Z	Without connector

Sensor cable length

Nil	0.5 m
L	3 m

Number of auto switches

Nil	2 pcs.
S	1 pc.
n	"n" pcs.

Auto switch

Nil	Without auto switch (Built-in magnet)
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* For the applicable auto switch model, refer to the table below.

<Made to Order>

Fluororubber seals: -XC22
(Example) CEP1B12-100-M9N-XC22

<Option>

Extension cable **CE1-R 05**

Cable length

05	5 m
10	10 m
15	15 m
20	20 m

Suffix

Nil	Extension cable
C	Extension cable & connector

Applicable counter
CEU5 series

Mounting Bracket Part No.

Cylinder part no.	Foot	Rod side flange
CEP1□12	CEP1-L12	CEP1-F12
CEP1□20	CEP1-L20	CEP1-F20

Applicable Auto Switches/Refer to pages 941 to 1067 for further information on auto switches.

Type	Special function	Electrical entry	Indicator/light	Wiring (Output)	Load voltage		Auto switch model		Lead wire length (m)					Pre-wired connector	Applicable load	
					DC	AC	Perpendicular	In-line	0.5 (Nil)	1 (M)	3 (L)	5 (Z)				
Solid state auto switch	—	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	M9NV	M9N	●	●	●	○	○	IC circuit	Relay, PLC	
	3-wire (PNP)			12 V		M9PV	M9P	●	●	●	○	○				
	2-wire			12 V		M9BV	M9B	●	●	●	○	○				
	3-wire (NPN)			5 V, 12 V		M9NWV	M9NW	●	●	●	○	○				
	3-wire (PNP)			12 V	M9PWV	M9PW	●	●	●	○	○	IC circuit				
	2-wire			12 V	M9BWV	M9BW	●	●	●	○	○		—			
	3-wire (NPN)			5 V, 12 V	M9NAV ^{*1}	M9NA ^{*1}	○	○	●	○	○		IC circuit			
	3-wire (PNP)			12 V	M9PAV ^{*1}	M9PA ^{*1}	○	○	●	○	○		—			
Reed auto switch	—	Grommet	Yes	3-wire (NPN equivalent)	—	5 V	—	A96V	A96	●	—	●	—	—	IC circuit	—
				No	2-wire	24 V	12 V	100 V or less	A93V ^{*2}	A93	●	●	●	●	—	—

*1 Water resistant type auto switches can be mounted on the above models, but in such case SMC cannot guarantee water resistance.

Consult with SMC regarding water resistant types with the above model numbers.

*2 1 m type lead wire is only applicable to D-A93.

* Lead wire length symbols: 0.5 m Nil (Example) M9NW
1 m M (Example) M9NWM
3 m L (Example) M9NWL
5 m Z (Example) M9NWWZ

* Solid state auto switches marked with "○" are produced upon receipt of order.

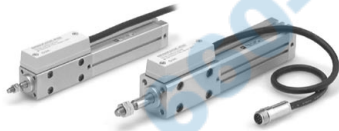
* Refer to page 655 for details on other applicable auto switches than listed above.

* For details about auto switches with pre-wired connector, refer to pages 1014 and 1015.

* Auto switches are shipped together (not assembled).



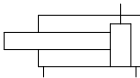
CEP1 Series



Cylinder Specifications

Action	Double acting, Single rod (Non-rotating piston)	
Fluid	Air	
Proof pressure	1.5 MPa	
Maximum operating pressure	1.0 MPa	
Minimum operating pressure	ø12	ø20
	0.15 MPa	0.1 MPa
Piston speed	50 to 300 mm/s	
Ambient and fluid temperature	0 to 60°C (No freezing)	
Lubrication	Non-lube	
Stroke length tolerance range	0 to +1.0 mm	
Cushion	Without	
Rod non-rotating accuracy	ø12	ø20
	±2°	±3°
Mounting	Direct mounting rod side tapped type (Standard), Foot type, Rod side flange type	

Symbol



Made to Order Specifications
[Click here for details](#)

Symbol	Specifications
-XC22	Fluororubber seals

Sensor Specifications

Cable	ø7, 6 core twisted pair shielded wire (Oil, Heat & Flame resistant)
Maximum transmission distance	23 m (when using SMC cable and counter)
Position detection method	Magnetic scale rod, sensor head <Incremental type>
Magnetic field resistance	14.5 mT
Power supply	10.8 to 26.4 VDC (Power supply ripple: 1% or less)
Current consumption	50 mA
Resolution	0.01 mm (With 4 times multiplication)
Accuracy	±0.02 mm ⁽¹⁾ (at 20°C)
Output type	Open collector (24 VDC, 40 mA)
Output signal	A/B phase difference output
Insulation resistance	500 VDC, 50 MΩ or more (between case and 12E)
Vibration resistance	33.3 Hz 6.8 G 2 hrs. each in X, Y directions 4 hrs. in Z direction based upon JIS D 1601
Impact resistance	30 G 3 times each in X, Y, Z directions
Enclosure	IP-67 (IEC Standard) ⁽²⁾
Extension Cable (Option)	CE1-R* 5 m, 10 m, 15 m, 20 m

Note 1) This includes the digital display error of the counter (CEU5).

When strokes are over 100 mm, accuracy is ±0.05 mm.

Moreover, the overall accuracy after mounting on equipment will vary depending on mounting conditions and the environment. Therefore, the customer should calibrate the equipment as a whole.

Note 2) Except for the connector, the cylinder section is the equivalent of an SMC water resistant cylinder.

Cylinder Stroke

Model	Standard stroke (mm)				Manufacturable stroke range
	25	50	75	100	
CEP1B12	●	●	●	●	1 to 150
CEP1B20	●	●	●	●	1 to 300

* Strokes other than standard strokes are available upon request for special. Consult with SMC separately.