

Stroke Reading Cylinder

Series CE1

ø12, ø20, ø32, ø40, ø50, ø63

How to Order

CE1 L 32 200 J79W

Mounting style

B	Both ends tapped style (Standard)
L	Foot style
F	Rod side flange style
G	Head side flange style
D	Double clevis style

Bore size

12	12 mm
20	20 mm
32	32 mm
40	40 mm
50	50 mm
63	63 mm

Standard cylinder stroke (mm)
Refer to "Standard Stroke" on page 10-12-19.

Auto switch

Nil	Without auto switch
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* For the applicable auto switch model, refer to the table below.
* Auto switches are shipped together, (but not assembled).

Number of auto switches

Nil	2 pcs.
S	1 pc.
3	3 pcs.
n	"n" pcs.

Cable length

Nil	0.5 m
L	3 m

Connector

Nil	With connector
Z	Without connector

Suffix for cylinder
(Applicable bore size ø40 to ø63)

Nil	With cushion on both ends
N	Without cushion
R	With cushion on rod end
H	With cushion on head end

* ø12, ø20, ø32: Without cushion only.
But, symbol N is not necessary.

<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 Auto Switch/Refer to page 10-20-1 for further information on auto switches.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage			Rail mounting		Direct mounting		Lead wire length (m)*				Pre-wire connector	Applicable load	
					DC	AC	ø12 to ø63		ø32 to ø63		0.5 (Nil)	3 (L)	5 (Z)	None (N)				
							Perpendicular	In-line	Perpendicular	In-line								
Reed switch	—	Grommet	Yes	3-wire (NPN equivalent)	—	5 V	—	—	A76H	A96V	A96	●	●	—	—	—	IC circuit	—
				2-wire	—	—	200 V	A72	A72H	—	—	●	●	—	—	—	—	Relay, PLC
		24 V			12 V	100 V	A73	A73H	—	—	●	●	●	—	—			
					—	—	—	A93V	A93	●	●	—	—	—				
						—	—	A73C	—	—	—	●	●	●	●	—		
	Diagnostic indication (2-color indication)	Grommet		—	—	—	A79W	—	—	—	●	●	—	—	—			
Solid state switch	—	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	—	F7NV	F79	M9NV	M9N	●	●	○	—	○	IC circuit	Relay, PLC
		3-wire (PNP)		12 V		F7PV		F7P	M9PV	M9P	●	●	○	—	○			
		2-wire		F7BV		J79		M9BV	M9B	●	●	○	—	○				
				J79C		—		—	—	●	●	●	●	—				
		Grommet		3-wire (NPN)	5 V, 12 V	F7NWV		F79W	F9NWV	F9NW	●	●	○	—	○	IC circuit		
	3-wire (PNP)			—	F7PW	F9PWV		F9PW	●	●	○	—	○					
	2-wire			F7BWV	J79W	F9BWV		F9BW	●	●	○	—	○	—				
				—	F7BA	—		F9BA	—	●	○	—	○					
	Water resistant (2-color indication)			—	F7BAV	—		—	—	—	●	●	○	—	—			
	Diagnostic indication (2-color indication)			4-wire(NPN)	5 V, 12 V	—		F79F	—	—	●	●	○	—	○	IC circuit		

* Lead wire length symbols: 0.5 m Nil (Example) F73C
3 m L (Example) F73CL
5 m Z (Example) F73CZ
None N (Example) A73CN

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

- Refer to page 10-12-26 for details on other applicable auto switches than listed above.
- For details about auto switches with pre-wire connector, refer to page 10-20-66.

Cylinder Specifications

Fluid	Air		
Proof pressure	1.5 MPa		
Maximum operating pressure	1.0 MPa		
Minimum operating pressure	ø12	ø20 to ø63	
	0.07 MPa	0.05 MPa	
Piston speed	70 to 500 mm/s		
Ambient and fluid temperature	0 to 60°C (No freezing)		
Humidity	25 to 85% RH (No condensation)		
Lubrication	Non-lube		
Stroke length tolerance range	ø12, ø20: $+1.0_0$		ø32, ø40, ø50, ø63: $+1.6_0$
With Air cushion	ø12, ø20, ø32...None		ø40, ø50, ø63...With
Thread tolerance	JIS Class 2		
Rod non-rotating accuracy	ø12	ø20	ø32, ø40, ø50, ø63
	±2°	±1°	±0.8°
Mounting	Both ends tapped (Standard), Foot style, Flange style, Double clevis style		
Auto switch	Reed type, Solid state type		

JIS Symbol



Mounting Bracket Part No.

Bore size (mm)	Foot *	Flange	Double clevis
12	CQ-L012	CQ-F012	CQ-D012
20	CQ-L020	CQ-F020	CQ-D020
32	CQ-L032	CQ-F032	CQ-D032
40	CQ-L040	CQ-F040	CQ-D040
50	CQ-L050	CQ-F050	CQ-D050
63	CQ-L063	CQ-F063	CQ-D063

Note 1) When ordering the foot bracket., order 2 pcs. per cylinder.

Note 2) Parts belonging to each bracket are as follows.
Foot, Flange/Body mounting bolts
Double clevis/Clevis pin, type C snap ring for shaft, Body mounting bolts

Auto Switch Mounting Bracket Part No.

Bore size (mm)	Mounting bracket part no.	Note	Applicable auto switch
12 20	BQ-1	• Switch mounting screw (M3 x 0.5 x 8ℓ) • Square nut	D-A7□/A80 D-A7□H/A80H D-A73C/A80C D-A79W D-F7□V
32 40 50 63	BQ-2	• Switch mounting screw (M3 x 0.5 x 10ℓ) • Switch spacer • Switch mounting nut	D-F7□/J79 D-J79C D-F7□WV D-F7□W/J79W D-F7BAL/F7BAVL D-F79F/F7NTL

Sensor Specifications

Cable	ø7, 6 core twisted pair shielded wire (Oil, Heat & Flame resistant cable)
Maximum transmission distance	23 m (when using SMC cable and counter)
Position detection method	Magnetic scale rod <Non-rotating> 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	40 mA
Resolution	0.1 mm/pulse
Accuracy	±0.2 mm (at 20°C) (1)
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	IP65 (IEC Standard) (2) Except connector tor part
Extension cable (Option)	5 m, 10 m, 15 m, 20 m

Note 1) This includes the digital display error of the counter (CEU1, CEU5).

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

Note 2) The cylinder section does not have a water resistant enclosure.

Standard Stroke

Bore size (mm)	Stroke (mm)												Manufacturable stroke range
	25	50	75	100	125	150	175	200	250	300	400	500	
12	●	●	●	●	●	●	—	—	—	—	—	—	25 to 150
20	●	●	●	●	●	●	●	●	—	—	—	—	25 to 300
32	—	●	●	●	●	●	●	●	●	●	—	—	25 to 400
40	—	—	—	●	●	●	●	●	●	●	●	●	25 to 600
50	—	—	—	—	—	—	—	●	—	●	—	●	25 to 600
63	—	—	—	—	—	—	—	●	—	●	—	●	25 to 600

* Please contact SMC regarding non-standard strokes.

When the bore size is 12 mm and the stroke length is 100 mm or more, particular care should be taken regarding an offset load on the rod.

RE^A_B

REC

C□X

C□Y

MQ^Q_M

RHC

MK(2)

RS^Q_G

RS^H_A

RZQ

MI^W_S

CEP1

CE1

CE2

ML2B

C₆5-S

CV

MVGQ

CC

RB

J

D-

-X

20-

Data