Incremental linear encoder

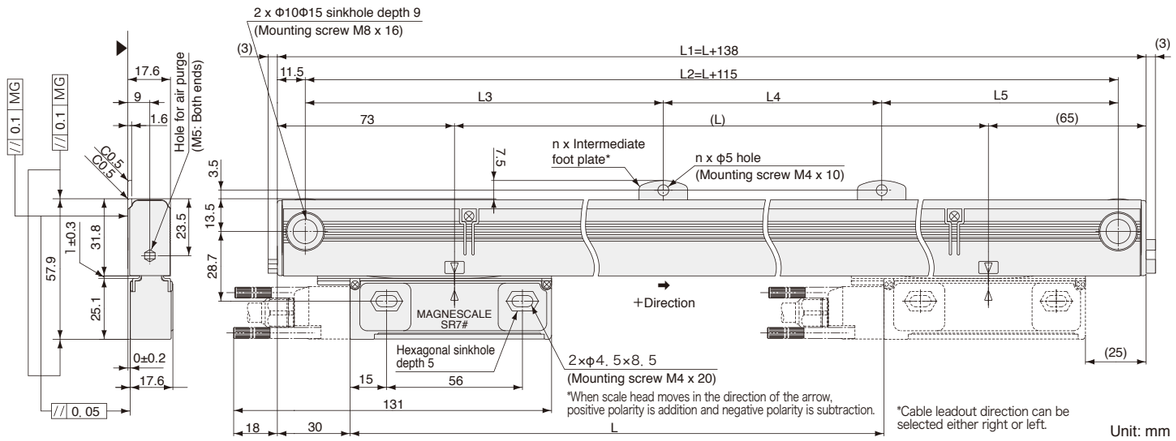
Slim type

SR74

- Slim type allows installation in narrow spaces
- Magnetic system allows use even in environments with condensation, oil, and other adverse conditions
- Same thermal expansion coefficient as iron

A/B/Reference point

Dimensions (cable left-lead out direction)



Unit: mm

Effective length	Total length	Mounting pitch				Number of intermediate foot plates
L	L1	L2	L3	L4	L5	n
70	208	185	–	–	–	0
120	258	235	–	–	–	0
170	308	285	–	–	–	0
220	358	335	–	–	–	0
270	408	385	–	–	–	0
320	458	435	–	–	–	0
370	508	485	–	–	–	0
420	558	535	–	–	–	0
470	608	585	–	–	–	0
520	658	635	–	–	–	0
570	708	685	–	–	–	0
620	758	735	–	–	–	0
720	858	835	417.5	–	417.5	1

Effective length	Total length	Mounting pitch				Number of intermediate foot plates
L	L1	L2	L3	L4	L5	n
770	908	885	442.5	–	442.5	1
820	958	935	467.5	–	467.5	1
920	1,058	1,035	517.5	–	517.5	1
1,020	1,158	1,135	567.5	–	567.5	1
1,140	1,278	1,255	627.5	–	627.5	1
1,240	1,378	1,355	677.5	–	677.5	1
1,340	1,478	1,455	727.5	–	727.5	1
1,440	1,578	1,555	520	520	515	2
1,540	1,678	1,655	550	550	555	2
1,640	1,778	1,755	585	585	585	2
1,740	1,878	1,855	620	620	615	2
1,840	1,978	1,955	650	650	655	2
2,040	2,178	2,155	720	720	715	2

MG: Machine guide * Intermediate foot plate: One location when L ≧ 720 mm, two locations when L ≧ 1440 mm

Unit: mm

Notes
- The surface indicated by the ▲ marks is the installation surface.
- Screws indicated in the diagram are supplied as standard accessories.
- Movement outside the effective length (L) will damage the scale head. It is recommended that the mechanical movable length (stroke) be set to 10 mm or more to the inside of both ends of the effective length (L).

Specifications

Model name	SR74
Effective length (L: mm)	70-2,040
Thermal expansion coefficient	12±1 × 10^{-6} /°C
Accuracy(at 20°C)	(3+3L/1,000) μmp-p or (5+5L/1,000) μmp-p L: Effective length (mm)
Reference point	Center point, Multi point (40 mm pitch), Signed-type (standard pitch 20 mm), User-selected point (1 mm pitch)
Output signal	A/B/Reference point line driver signal, compliant with EIA-422
Resolution	Selectable from 0.05, 0.1, 0.5, and 1 μm (Set at factory shipping)
Maximum response speed	50m/ min (Resolution: 0.1 μm, Minimum phase difference: at 50 ns)
Functional safety	—
Legal compliance	FCC Part15 Subpart B Class A ICES-003 Class A Digital Device EN55011 Gp1 Class A, EN61000-6-2(60 V DC or less)
Operating temperature range	0 to +50°C
Storage temperature range	-20 to +55°C
Vibration resistance	150 m/s^2 (50 Hz to 3,000Hz)
Impact resistance	350 m/s^2 (11 ms)
Protective design grade	IP54 (Air purge not included), IP65 (Air purge included)
Power supply voltage range	DC+4.75 to +5.25 V
Maximum consumption current	1.0W or less (4.75V or 5.25V)
Consumption current	200mA (5V) (when the controller is connected)
Mass	Approx. 0.27kg+ 1.36kg/m or less
Standard compatible cable	CH33-***CP/CE
Maximum cable length	15 m

Details of model designation

Scale

SR74 - ×××★○□◆###

[×××]Effective length (L): cm units

[★]Cable lead-out direction

Type	Lead-out direction
R	Right
L	Left

[○]Accuracy grade

Type	Accuracy grade
A	(5+5L/1,000) μmp-p
S	(3+3L/1,000) μmp-p

L: Effective length(mm)

[□]Resolution and direction (μm)

Type	Direction	Resolution	Type	Direction	Resolution
B	+	0.05	G	–	0.05
C		0.1	H		0.1
D		0.5	J		0.5
E		1.0	K		1

[◆]Minimum phase difference

Type	Phase difference (ns)	Type	Phase difference (ns)	Type	Phase difference (ns)
A	50	F	300	L	1,250
B	100	G	400	M	2,500
C	150	H	500	N	3,000
D	200	J	650		
E	250	K	1,000		

[###]Reference point position
(Distance from left end of effective length:Unit mm)

Reference point position	Indication method
Less than 1,000	Number (850 mm → 850)
1,000−1,099 mm	A + lower 2 digits(1,050 mm → A50)
1,100−1,199 mm	B + lower 2 digits
1,200−1,299 mm	C + lower 2 digits
1,300−1,399 mm	D + lower 2 digits
1,400−1,499 mm	E+ lower 2 digits
1,500−1,599 mm	F + lower 2 digits
1,600−1,699 mm	G+ lower 2 digits
1,700−1,799 mm	H + lower 2 digits
1,800−1,899 mm	J + lower 2 digits
1,900−1,999 mm	K + lower 2 digits
2,000−2,040 mm	L+ lower 2 digits
Center	X
Multi	Y
Signed-type	Z

Cable

CH33 - □□○▽※#

[□□]Cable length
Written by flush right, indication in "m" units, up to 30 m, 1 m pitch
(Example)

Type	Cable length
07	7m
26	26m

[○]Conduit

Type	Conduit
C	With conduit (standard)
N	Without conduit

[▽]Cable seath (covering)

Type	
P	PVC (Polyvinyl chloride)
E	PU (Polyurethane)

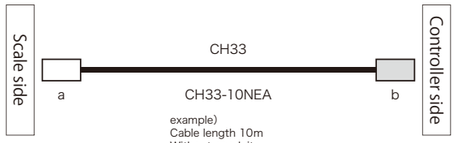
[※]Controller side connector

Type		Specification	Remarks
Without	With	Earth wire	
None	-	Open-end	Standard
A	-	D-sub 15P	
D	-	D-sub 9P	
L	-	10P made by Sumitomo 3M	Mitsubishi NC, J3 (A/B/Reference)
E	P	20P straight case made by Honda Tsushin Kogyo	FANUC (A/B/Reference)
G	-	6P made by molex®	YASKAWA Electric, Panasonic (INC serial, ABS)
H	R	Horizontal drawing case made by HIROSE Electric	FANUC (A/B/Reference)

[#]Scale side connector

Type	Specification	Remarks
None	Original of Magnescale	Standard

*Relay type cannot be used for A/B/Reference type of SR74 and SR84



example)
Cable length 10m
Without conduit
PU sheath
Scale side connector
Original of Magnescale