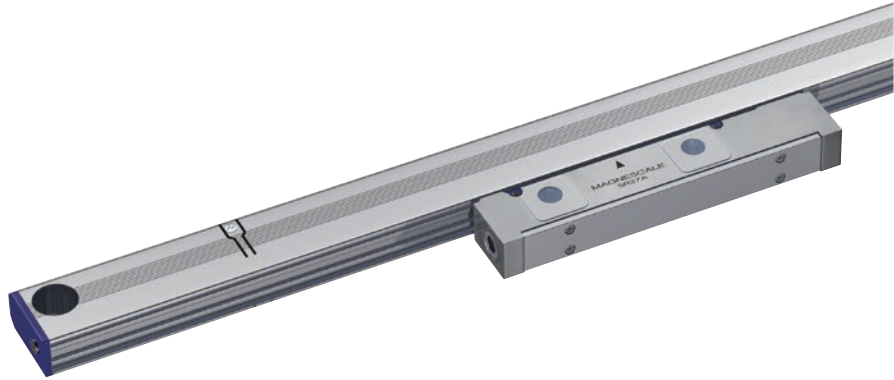


Absolute linear encoder
Enclosed type
SR27A

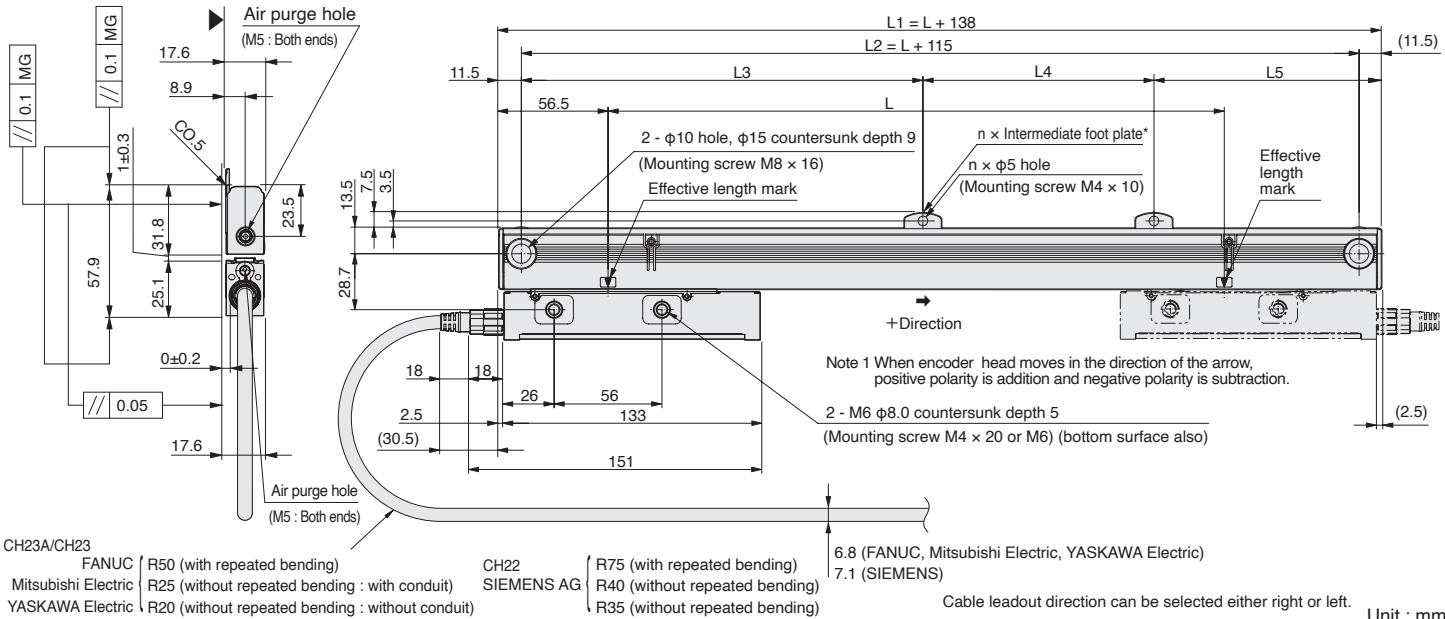
- Slim design allows installation in narrow spaces
- Magnetic system enables use even in environments with condensation, oil, and other adverse coditions
- Same thermal expansion as iron



- FANUC
- Mitsubishi Electric
- YASKAWA Electric
- Panasonic*
- SIEMENS

* Scheduled to launch in 2025

Dimensions



CH23A/CH23
FANUC R50 (with repeated bending)
Mitsubishi Electric R25 (without repeated bending : with conduit)
YASKAWA Electric R20 (without repeated bending : without conduit)
CH22
SIEMENS AG R40 (without repeated bending)
R75 (with repeated bending)
R40 (without repeated bending)
R35 (without repeated bending)
Cable leadout direction can be selected either right or left. Unit : mm

Effective length	Overall 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	
670	808	785	392.5	—	392.5	1	
720	858	835	417.5	—	417.5	1	

Effective length	Overall 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	

Unit: mm

MG: Machine guide * Intermediate foot plate: One location when L ≥ 670 mm, two locations when L ≥ 1440 mm

- Notes
- The surface indicated by the ▲ marks is the installation surface.
 - Movement outside the effective length (L) will damage the encoder 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	SR27A - xxx○□AX###	SR27A - xxx○□BX SR27A - xxx○□DX	SR27A- xxx○□F###	SR27A - xxx○AZY
Effective length (L: mm)	70 to 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, or user-selected position (Factory set)	Fixed to center	Center, or user-selected position (Factory set)	Fixed to 10 mm from left end of effective length
Output signal	Absolute serial bidirectional signal, compliant with EIA-485			Compliant with DRIVE-CLiQ
Compatible controllers	FANUC α/ai interface compatible	Mitsubishi Electric	YASKAWA Electric	SIEMENS AG
Resolution	Selectable from 0.005*, 0.01, 0.05, 0.1, 0.5 and 1 μm (Factory set)	Selectable from 0.005*, 0.01, 0.05 and 0.1 μm (Factory set)	Selectable from 0.01, 0.05, λ / 32768 and λ / 4096 μm (Factory set)	0.01 μm (Factory set)
Maximum response speed	200 m/min			
Functional safety	—			IEC 61508, EN/BS 62061 SIL 2 EN/BS/ISO 13849-1 Cat. 3 / PL d EN/BS 61800-5-2
Product Safety	FCC Part15 Subpart B Class A ICES-003 Class A Digital Device EN/BS 61000-6-2, EN/BS 61000-6-4			
Product Environment	EN/BS 63000			
Operating temperature	0 to +50°C			
Storage temperature	-20 to +55°C			
Vibration resistance	150 m/s ² (50 Hz to 3,000 Hz)			
Impact resistance	350 m/s ² (11 ms)			
Protective design grade	IP54 (Air purge not included), IP65 (Air purge included)			
Power supply voltage	DC +4.75 to +5.25 V			DC +17 to +30.8 V
Maximum power consumption	1.3 W or less (4.75V or 5.25V)			1.75 W or less (17 V) 1.9 W or less (30.8 V)
Consumption current	250 mA (with 5 V controller connection)			75 mA (with 24 V controller connection)
Mass	Approx. 0.39 kg + 1.53 kg/m or less			
Compatible cables (types without relay connectors)	CH23A-***NVF 13 m	CH23-***NVM 13 m	CH23-***NVG 13 m	CH22-***NSMY 30 m
Compatible cables (types with relay connectors)	CH23A-***NVK + CH23A-***NPFA 30 m	CH23-***NVK + CH23-***NPMA 30 m	CH23-***NVK + CH23-***NVGA + CH23-***NVGA 30 m *2	CH22-***NSMF + CH22-*** NSFY 30 m

*1 For resolution of 0.005 μm, please contact our sales department. *2 Three-piece configuration; cannot be used in two-piece configuration. Magnescale reserves the right to change product specifications without prior notice.

Details of model designation

Encoder

SR27A - xxx○□△#

[xxx] Effective length (cm)
Refer to the table in "Dimensions".

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

L: Effective length (mm)

Type	Direction	Resolution	Type	Direction	Resolution	Type	Direction	Resolution*
A		0.01	F		0.01	L		λ/32768
B		0.05	G		0.05			
C	+	0.1	H	—	0.1	+		
D		0.5	J		0.5	M		λ/4096
E		1	K		1			

Mitsubishi Electric : A, B, C only
YASKAWA Electric : A, B, L, M only
SIEMENS AG : A only
* λ : 320 μm

Type	NC manufacturer	Remarks
A	FANUC	α/ai interface
B	Mitsubishi Electric	Half duplex
D	Mitsubishi Electric	Full duplex
F	YASKAWA Electric	Relay
Z	SIEMENS AG	DRIVE-CLiQ

Type	Reference point position
X	Effective length center
Y	Fixed to 10mm from left end of effective length

SIEMENS AG : Y only
Mitsubishi Electric : X only
Please contact our representative for custom positions.

Cables

CH22 - □□□○▽※#

Type	Cable length
015	1.5 m
070	7 m
260	26 m

Type	Conduit specification
C	With conduit
N	Without conduit (standard)

CH23 - □□□○▽※#

CH23A - □□□○▽※#
(CH23A : FANUC model only)

Type	Cable length
010	1 m
005	0.5 m
065	6.5 m
100	10 m

Type	Conduit specification
C	With conduit
N	Without conduit

Type	Cable specification
V	PVC (φ6.8) [Encoder side]
C	PU (φ6.8) [Encoder]
P	PVC (φ8) [Controller side]
E	PU (φ8) [Controller side]

Type	Specification	Remarks
S	PU	
M	Encoder head connector	Standard
F	M12 connector (Female) made by Phoenix Contact	Relay/ Waterproofing

Type	Specification	Remarks
None	Open-end*	Encoder side connector should be 10P JN2 (Female) made by Japan Aviation Electronics Industry or 12P made by TAJIMI ELECTRONICS Standard
M*	10P made by 3M	Mitsubishi Electric NC, J3
F	20P straight case made by Honda Tsushin Kogyo	FANUC
G*	6P made by Molex Japan LLC	YASKAWA Electric
J	Horizontal drawing case made by HIROSE Electric	FANUC
K	10P JN1 (Male) made by Japan Aviation Electronics Industry	Relay
N	12P R04 (Male) made by TAJIMI ELECTRONICS	Relay (fixed)

* CH23 only

Type	Specification	Remarks
Z	Open-end*	Encoder side connector should be 10P JN2 (Female) made by Japan Aviation Electronics Industry or 12P made by TAJIMI ELECTRONICS Standard
M*	10P made by 3M	Mitsubishi Electric NC, J3
F	20P straight case made by Honda Tsushin Kogyo	FANUC
G*	6P made by Molex Japan LLC	YASKAWA Electric
J	Horizontal drawing case made by HIROSE Electric	FANUC
K	10P JN1 (Male) made by Japan Aviation Electronics Industry	Relay
N	12P R04 (Male) made by TAJIMI ELECTRONICS	Relay (fixed)

* CH23 only

Type	Specification	Remarks
None	Original of Magnescale	Standard
A	10P JN2 (Female) made by Japan Aviation Electronics Industry	Relay
C	12P R04-9125JF8.5 made by TAJIMI ELECTRONICS	Relay (fixed)

