

Absolute linear encoder  
Robust type

# SR67A

- High rigidity provides resistance to shock and vibration
- Magnetic system allows use even in environments with condensation, oil, and other adverse conditions
- Enables direct communication using the protocol of each supporting manufacturer without the requirement of an amplifier
- Same thermal expansion as iron

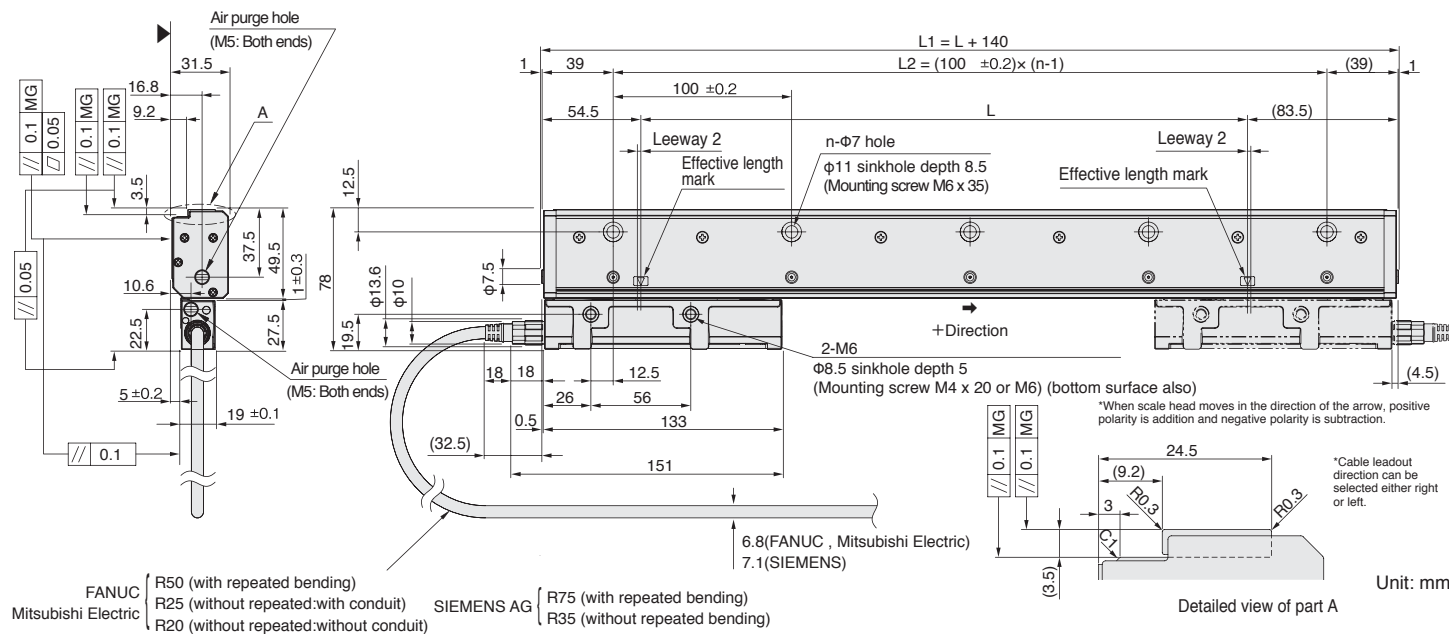


FANUC

Mitsubishi Electric

SIEMENS

## Dimensions



Effective length	Total length	L2	n
L	L1		
140	280	200	3
240	380	300	4
340	480	400	5
440	580	500	6
540	680	600	7
640	780	700	8
740	880	800	9
840	980	900	10
940	1,080	1,000	11
1,040	1,180	1,100	12
1,140	1,280	1,200	13
1,240	1,380	1,300	14
1,340	1,480	1,400	15
1,440	1,580	1,500	16

Effective length	Total length	L2	n
L	L1		
1,540	1,680	1,600	17
1,640	1,780	1,700	18
1,740	1,880	1,800	19
1,840	1,980	1,900	20
2,040	2,180	2,100	22
2,240	2,380	2,300	24
2,440	2,580	2,500	26
2,640	2,780	2,700	28
2,840	2,980	2,900	30
3,040	3,180	3,100	32
3,240	3,380	3,300	34
3,440	3,580	3,500	36
3,640	3,780	3,700	38

MG: Machine guide

- Notes**
- The surface indicated by the ▲ marks is the installation surface.
  - 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	SR67A - xxx□□AX	SR67A - xxx□□BX SR67A - xxx□□DX	SR67A - xxx□□AZY
Effective length (L: mm)	140 - 3,640		
Thermal expansion coefficient	12±1 × 10 <sup>-6</sup> /°C		
Accuracy(at 20°C)	(3+3L/1,000) μm-p (effective length 140 to 3,040 mm) or (5+5L/1,000) μm-p (effective length 140 to 3,640 mm), L: Effective length (mm)		
Reference point	Center, or user-selected position (Set at factory shipping)	Fixed to center	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	SIEMENS AG
Resolution	Selectable from 0.001*, 0.005, 0.01, 0.05, 0.1, 0.5 and 1 μm (Factory set)	Selectable from 0.001*, 0.005, 0.01, 0.05 and 0.1 μm (Factory set)	Selectable from 0.001*, 0.005 and 0.01 μm (Factory set)
Maximum response speed	200 m/min		
Functional safety	Please consult with each controller manufacturer regarding support for functional safety.		EN ISO13849-1:2008 Cat.3 EN 62061:2005 / IEC 61508:2010 EN61800-5-2:2007
Legal compliance	FCC Part15 Subpart B Class A ICES-003 Class A Digital Device EN55011 Gp1 Class A, EN61000-6-2		
Operating temperature range	0 to +50°C		
Storage temperature range	-20 to +55°C		
Vibration resistance	250 m/s <sup>2</sup> (50 Hz to 3,000 Hz)		
Impact resistance	450 m/s <sup>2</sup> (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		DC+17 to +30.8 V
Maximum consumption current	1.3W or less (4.75V or 5.25V)		1.75W or less (17V) 1.9W or less (30.8V)
Consumption current	250mA (5V) (when the controller is connected)		75mA (24V) (when the controller is connected)
Mass	Approx. 0.9kg+ 5.2kg/m or less		
Compatible cables (types without relay connectors) Maximum cable length	CH23-***NVF 13 m	CH23-***NVM 13 m	CH22-***NSMY 30 m
Compatible cables (types with relay connectors) Maximum cable length	CH23-***NVK + CH23-***NPFA 30 m	CH23-***NVK + CH23-***NPMA 30 m	CH22-***NSMF + CH22-***NSFY 30 m

\*For resolution of 1nm(0.001μm), please contact our sales department. \*Magnescale reserves the right to change product specifications without prior notice.

## Details of model designation

### Scale

SR67A - xxx□□△#

[xxx]Effective length (cm)

[□]Accuracy grade

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

L: Effective length(mm)

[□]Resolution and direction (μm)

Type	Direction	Resolution	Type	Direction	Resolution
S		0.005	T		0.005
A		0.01	F		0.01
B	+	0.05	G	-	0.05
C		0.1	H		0.1
D		0.5	J		0.5
E		1	K		1

SIEMENS AG: S, A  
Mitsubishi Electric: S, A, B, C  
FANUC: S, A, B, C, D, E, T, F, G, H, I, J, K

[△]Communication protocol

Type	NC manufacture	Remarks
A	FANUC	α/ai interface
B	Mitsubishi Electric	2-wire
D	Mitsubishi Electric	4-wire
Z	SIEMENS AG	DRIVE-CLiQ

SIEMENS AG: Y only  
Mitsubishi Electric, FANUC: X only  
\*Please consult our representative separately for arbitrary positions.

[#]Reference point position

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

### Cables

CH22 - □□□□▽※#

[□□□]Cable length

Written by flush right, indication in "m" units, up to 30 m, 0.5 m pitch (Example)

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

[□]Conduit specification

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

CH23 - □□□□○▽※#

[□□□]Cable length

(Example)

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

[□]Conduit specification

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

[▽]Cable sheath

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

[▽]Cable sheath (covering)

Type	Cable specification
S	PU (Polyurethane, Siemens Motion connect 800+)

[\*]Scale side connector

Type	Specification	Remarks
M	Scale head connector	Standard
F	M12 connector (Female) made by Phoenix Contact	Relay/ Waterproofing
E	M12 connector (Female) with panel mount relay made by Phoenix Contact	Relay/ Waterproofing/ Attached connector

[#]Controller side connector

Type	Specification	Remarks
None	Open-end	
Y	RJ45 connector made by YAMAICHI ELECTRONICS	Adopts NC machine tool
Z	RJ45 connector (water proof) made by YAMAICHI ELECTRONICS	Relay
F	M12 connector (Male) made by Phoenix Contact	Relay/ Waterproofing

[\*]Controller side connector

Type	Specification	Remarks
Z	Scale side connector should be 10P JN2 (Female) made by Japan Aviation Electronics Industry or 2P made by TAJIMI ELECTRONICS	
None	Open-end	Standard
M	10P made by Sumitomo 3M	Mitsubishi NC, J3 (INC serial, ABS)
F	20P straight case made by Honda Tsushin Kogyo	FANUC (INC serial, ABS)
J	Horizontal drawing case made by HIROSE Electric	FANUC (INC serial, ABS)
K	10P JN1 (Male) made by Japan Aviation Electronics Industry	Relay
N	12P R04 (Male) made by TAJIMI ELECTRONICS	Relay (fixed)

[#]Scale side connector

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)

