## Absolute linear encoder Robust type **SR67A**

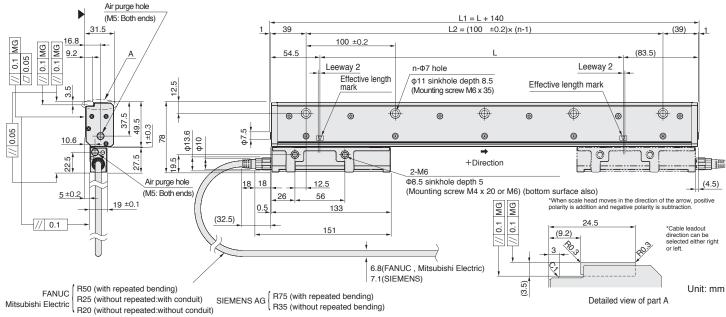
· High rigidity provides resistance to shock and vibration

· 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

Mitsubishi Electric

## Dimensions



Effective length	Total length	L2	n
L	L1	LZ	11
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	LZ	11
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
			Unit: mm

## MG: Machine guide

Notes  $\cdot$  The surface indicated by the  $\blacktriangle$  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

Specifications			
<i>l</i> lodel name	SR67A-xxxO□AX	SR67A - x×x◯□BX SR67A - x×x◯□DX	SR67A - xxx〇AZY
Effective length (L: mm)		140 - 3,640	
hermal expansion coefficient	12±1 × 10 <sup>-6</sup> /°C		
Accuracy(at 20°C)	(3+3L/1,000) µmp-p (effective length 140 to 3	,040 mm) or (5+5L/1,000) μmp-p (effective leng	th 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
Dutput signal	Absolute serial bidirectional s	ignal, compliant with EIA-485	Compliant with DRIVE-CLiQ
Compatible controllers	FANUC a/ai interface compatible	Mitsubishi Electric	SIEMENS AG
Resolution S	electable from 0.001*, 0.005, 0.01, 0.05, 0.1, 0.5 and 1 $\mu\text{m}$ (Factory set)	Selectable from 0.001*, 0.005, 0.01, 0.05 and 0.1 $\mu m$ (Factory set)	Selectable from 0.001*, 0.005 and 0.01 $\mu m$ (Factory set
Aaximum 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
egal 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	
/ibration resistance		250 m/s <sup>2</sup> (50 Hz to 3,000 Hz)	
mpact resistance		450 m/s <sup>2</sup> (11 ms)	
Protective design grade	IP54 ( <i>F</i>	Air purge not included), IP65 (Air purge ind	cluded)
Power supply voltage range	DC+4.75 t		DC+17 to +30.8 V
Aaximum consumption current	1.3W or less (4	I.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)
lass		Approx. 0.9kg+ 5.2kg/m or less	
Compatible cables	CH23-***NVF	CH23-***NVM	CH22-***NSMY
(types without relay connectors) Maximum cable length Compatible cables	13 m	13 m	30 m
(types with relay connectors)	CH23-***NVK + CH23-***NPFA 30 m	CH23-***NVK + CH23-***NPMA 30 m	CH22-***NSMF + CH22-*** NSFY 30 m
Details of model design cale R67A - <u>×××○□△</u> ♯	[×××]Effective length (cm) [○]Accuracy grade Type Accuracy grade A (5+5L/1,000)µmp-p L: Effective length(mm) [□]Resolution Type Directic S A A B + C D E SIEMENS AG:	Image: marked bit with state stress         Type         Direction         Resolution         Type         NC m           0.005         T         0.005         0.01         A         FANU           0.01         F         0.01         B         Mitsui           0.05         G         -         0.01         D         Mitsui           0.05         G         -         0.01         D         Mitsui           0.1         H         0.1         Z         SIEM         SIEMENS AC           1         K         1         Mitsubishi Ele         Mitsubishi Ele	JC         α/αi interface           bishi Electric         2-wire           bishi Electric         4-wire           MENS AG         DRIVE-CLIQ           S: Y only         sectric, FANUC: X only           ult our representative separately         grad to the second secon
ables H 2 2 # ]Cable length itten by flush right, lication in "n" units, to 30 m, 0.5 m pitch ample) [O]Conduit specification ype Cable length Type Conduit specification	[▽]Cable seath (covering)         Type       Cable specification         S       PU (Polyurethane, Siemens Motion connect         [*]Scale side connector       Type         Type       Specification         M       Scale head connector         F       M12 connector (Female) made by Phoenix Contact         E       M12 connector (Female) with panel mount relay made by Phoenix Contact	Remarks Standard act Relay/Waterproofing/ Relay/ Waterproofing/ Attached connector CH22-050NSMF a CH22-050NSMF CH22-050NSMF CH22-050NSMF CH22-050NSMF	CH22 H22-100NSMY b 2-100NSMY CH22-050NSFY
115         1.5m         C         With conduit           070         7m         N         Without conduit (standard)           260         26m	[#]Controller side connector           Type         Specification           None         Open-end           Y         R/45 connector made by YAMAICHI ELECTRONCS           Z         R/45 connector (water proof) made by YAMAICHI ELECTRON           F         M12 connector (Male) made by Phoenix Control	Remarks         Cable length 5m         Cable           Without conduit         Without conduit         Without conduit         Without conduit           Adopts NC machine tool         Scale side connector         Scale side connector         Scale and connector           ICS         Relay         Controller side connector         Controller side connector         RJ45	ple)     example)       elength 10m     Cable length 5m       out conduit     Without conduit       heath     PU sheath       side connector     Scale side connector       nal of Magnescie     M12 (Female)       orlor side connector     Controller side connector       made by     RJA5 made by       AICHI ELECTRONICS     YAMAICHI ELECTRONICS

Center, or user-selected position (Set at factory shipping) Absolute serial bidirectional si FANUC α/αi interface compatible Selectable from 0.001*, 0.005, 0.01, 0.05, 0.1, 0.5 and 1 µm (Factory set) Please consult with each cont	Mitsubishi Electric Selectable from 0.001*, 0.005, 0.01, 0.05 and 0.1 µm (Factory set) 200 m/min troller manufacturer regarding	SR67A - xxxOAZY gth 140 to 3,640 mm), L: Effective length (mm) Fixed to 10 mm from left end of effective length Compliant with DRIVE-CLiQ SIEMENS AG Selectable from 0.001*, 0.005 and 0.01µm (Factory set) EN ISO13849-1:2008 Cat.3
Center, or user-selected position (Set at factory shipping) Absolute serial bidirectional si FANUC α/αi interface compatible Selectable from 0.001*, 0.005, 0.01, 0.05, 0.1, 0.5 and 1 µm (Factory set) Please consult with each cont	12±1 × 10 <sup>-6</sup> /°C ,040 mm) or (5+5L/1,000) μmp-p (effective leng Fixed to center ignal, compliant with EIA-485 Mitsubishi Electric Selectable from 0.001*, 0.005, 0.01, 0.05 and 0.1 μm (Factory set) 200 m/min troller manufacturer regarding	Fixed to 10 mm from left end of effective length Compliant with DRIVE-CLiQ SIEMENS AG Selectable from 0.001*, 0.005 and 0.01µm (Factory set)
Center, or user-selected position (Set at factory shipping) Absolute serial bidirectional si FANUC α/αi interface compatible Selectable from 0.001*, 0.005, 0.01, 0.05, 0.1, 0.5 and 1 µm (Factory set) Please consult with each cont	,040 mm) or (5+5L/1,000) μmp-p (effective leng Fixed to center ignal, compliant with EIA-485 Mitsubishi Electric Selectable from 0.001*, 0.005, 0.01, 0.05 and 0.1 μm (Factory set) 200 m/min troller manufacturer regarding	Fixed to 10 mm from left end of effective length Compliant with DRIVE-CLiQ SIEMENS AG Selectable from 0.001*, 0.005 and 0.01µm (Factory set)
Center, or user-selected position (Set at factory shipping) Absolute serial bidirectional si FANUC α/αi interface compatible Selectable from 0.001*, 0.005, 0.01, 0.05, 0.1, 0.5 and 1 µm (Factory set) Please consult with each cont	Fixed to center ignal, compliant with EIA-485 Mitsubishi Electric Selectable from 0.001*, 0.005, 0.01, 0.05 and 0.1 µm (Factory set) 200 m/min troller manufacturer regarding	Fixed to 10 mm from left end of effective length Compliant with DRIVE-CLiQ SIEMENS AG Selectable from 0.001*, 0.005 and 0.01µm (Factory set)
Absolute serial bidirectional si FANUC α/αi interface compatible Selectable from 0.001*, 0.005, 0.01, 0.05, 0.1, 0.5 and 1 µm (Factory set) Please consult with each cont	ignal, compliant with EIA-485 Mitsubishi Electric Selectable from 0.001*, 0.005, 0.01, 0.05 and 0.1 μm (Factory set) 200 m/min troller manufacturer regarding	Compliant with DRIVE-CLiQ SIEMENS AG Selectable from 0.001*, 0.005 and 0.01µm (Factory set)
FANUC α/αi interface compatible Selectable from 0.001*, 0.005, 0.01, 0.05, 0.1, 0.5 and 1 μm (Factory set) Please consult with each cont	Mitsubishi Electric Selectable from 0.001*, 0.005, 0.01, 0.05 and 0.1 µm (Factory set) 200 m/min troller manufacturer regarding	SIEMENS AG Selectable from 0.001*, 0.005 and 0.01µm (Factory set)
Selectable from 0.001*, 0.005, 0.01, 0.05, 0.1, 0.5 and 1 µm (Factory set) Please consult with each cont	Selectable from 0.001*, 0.005, 0.01, 0.05 and 0.1 µm (Factory set) 200 m/min troller manufacturer regarding	Selectable from 0.001*, 0.005 and 0.01µm (Factory set)
Please consult with each cont	200 m/min troller manufacturer regarding	
	troller manufacturer regarding	EN ISO13849-1:2008 Cat.3
	с с	EN ISO13849-1:2008 Cat.3
	Please consult with each controller manufacturer regarding support for functional safety.	
	FCC Part15 Subpart B Class A ICES-003 Class A Digital Device EN55011 Gp1 Class A, EN61000-6-2	
	0 to +50°C	
	-20 to +55°C	
	250 m/s <sup>2</sup> (50 Hz to 3,000 Hz)	
	450 m/s² (11 ms)	
IP54 (A	Air purge not included), IP65 (Air purge in	cluded)
DC+4.75 t	to +5.25 V	DC+17 to +30.8 V
1.3W or less (4	1.75V or 5.25V)	1.75W or less (17V) 1.9W or less (30.8V)
250mA (5V) (when the	controller is connected)	75mA (24V) (when the controller is connected)
CH23-***NVF		CH22-***NSMY
13 m	13 m	30 m
CH23-***NVK + CH23-***NPFA 30 m	CH23-***NVK + CH23-***NPMA 30 m	CH22-***NSMF + CH22-*** NSFY 30 m
[×××]Effective length (cm) [□]Resolution [○]Accuracy grade A (5+5L/1,000)µmp-p S (3+3L/1,000)µmp-p L: Effective length(mm) SIEMENS AG: Mitsubishi Eler	Image: Difference of the section of the sec	UC         α/αi interface         type         point position           Jbishi Electric         2-wire         X         Center           Jbishi Electric         4-wire         Y         Fixed to 10mm from left end of effective length           G: Y only ectric, FANUC: X only sult our representative separately         State         State
[\]Cable seath (covering)         Type       Cable specification         S       PU (Polyurethane, Siemens Motion connect         [**]Scale side connector       Type         Type       Scale head connector         F       M12 connector (Female) made by Phoenix Contact         E       M12 connector (Female) with panel mount relay made by Phoenix Contact         It       Scale head connector         F       M12 connector (Female) with panel mount relay made by Phoenix Contact         It       Ploontroller side connector         Type       Specification         None       Open-end         Y       R45 cornector made by YMAICH ELECTRONCS         Z       R45 cornector (water prof) made by YMAICH ELECTRON	t 800+)       CH22         Remarks       a CH22-050NSMF         Standard       a CH22-050NSMF         act Relay/Waterproofing/ Attached connector       CH22-050NSMF         Renarks       CH22-050NSMF         Renarks       CH22-050NSMF         Renarks       CH22-050NSMF         Renarks       CH22-050NSMF         Renarks       CH22-050NSMF         CH22-050NSMF       CH2         Cable length 5m       Cable         Cable side connector       Coriginal of Magnescale         Original of Magnescale       Original of Magnescale         Attact Relay       M12 (male) made by RJ44	CH22 CH22-100NSMY b t2-100NSMY CH22-050NSFY
[*]Controller side connector     Type Specification Remarks     Without With Earth wire	CH23	CH23 b a CH23-050NPMA b CH23
ti	#       DC+4.75         DC+4.75         1.3W or less (4         250mA (5V) (when the         CH23-***NVF         13 m         CH23-***NVF         13 m         CH23-***NVF         30 m         Secontact our sales department. *Magnescale reserves         Impediation         Type Accuracy grade         Type Accuracy grade       A         SiteMENS AG:       B         SiteMENS AG:       Mitsubishi Ele         FANUC: S, A, I         (V]Cable seath (covering)         #       IV/2 Cable specification         SiteMENS AG:       Mitsubishi Ele         FANUC: S, A, I       IV/2 Cable seath (covering)         #       IV/2 Cable seath (covering)         #       IV/2 Cable seath (covering)         #       IV/2 Cable seath (covering)         IV/2 Cable seath (covering)       IV/2 connector (Female) made by Phoenix Contact         III/2 connector (Female) with panel mount         E       M12 connector (Female) with panel mount         E       M12 connector (Male) made by Phoenix Contact	450 m/s² (11 ms)         IP54 (Air purge not included), IP65 (Air purge in DC+4.75 to +5.25 V         DC+4.75 to +5.25 V         1.3W or less (4.75V or 5.25V)         250mA (5V) (when the controller is connected)         Approx. 0.9kg+ 5.2kg/m or less         CH23-***NVF         CH23-***NVF         CH23-***NVF         CH23-***NVF         CH23-***NVF         CH23-***NVK + CH23-***NPFA         CH23-***NVK + CH23-***NPFA         CH23-***NVK + CH23-***NPFA         30 m         Secontact our sales department.         *Magescale reserves the right to change product specifications without prior n         Implement Colspan="2">Ch23-***NPFA         ()Accuracy grade         Type Accuracy grade       Implement Colspan="2">Implement Colspan="2">()Accuracy grade         Implement Colspan="2">(C)Colspan="2">()Accuracy grade         Implement Colspan="2">Implement Colspan="2">()Alt colspan="2"         (Implematic Colsp

SR67A-×××○□AX	SR67A-xxx◯□BX SR67A-xxx◯□DX	SR67A-xxx〇AZY
	140 - 3,640	
	12±1 × 10 <sup>-6</sup> /°C	
	8,040 mm) or (5+5L/1,000) μmp-p (effective leng	
Center, or user-selected position (Set at factory shipping)	Fixed to center	Fixed to 10 mm from left end of effective length
	ignal, compliant with EIA-485	Compliant with DRIVE-CLiQ
FANUC a/ai interface compatible	Mitsubishi Electric	SIEMENS AG
ectable from 0.001 <sup>*</sup> , 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 0.01µm (Factory set)
	200 m/min	
	troller manufacturer regarding nctional safety.	EN ISO13849-1:2008 Cat.3 EN 62061:2005 / IEC 61508:2010 EN61800-5-2:2007
	FCC Part15 Subpart B Class A ICES-003 Class A Digital Device EN55011 Gp1 Class A, EN61000-6-2	
	0 to +50°C	
	-20 to +55°C	
	250 m/s <sup>2</sup> (50 Hz to 3,000 Hz)	
	450 m/s² (11 ms)	
IP54 (/	Air purge not included), IP65 (Air purge in	cluded)
DC+4.75	to +5.25 V	DC+17 to +30.8 V
1.3W or less (4	1.75V or 5.25V)	1.75W or less (17V) 1.9W or less (30.8V)
250mA (5V) (when the	controller is connected)	75mA (24V) (when the controller is connected)
	Approx. 0.9kg+ 5.2kg/m or less	
CH23-***NVF	CH23-***NVM	CH22-***NSMY
13 m	13 m	30 m
CH23-***NVK + CH23-***NPFA 30 m	CH23-***NVK + CH23-***NPMA 30 m	CH22-***NSMF + CH22-*** NSFY 30 m
contact our sales department. *Magnescale reserves	s the right to change product specifications without prior n	otice.
ation		
[×××]Effective length (cm) [□]Resolution	n and direction (µm) [∆]Commur	nication protocol [#]Reference point position
	on Resolution Type Direction Resolution Type NC m 0.005 T 0.005 A FANU	anufacture Remarks Type Reference
Type Accuracy grade A	0.01 F 0.01 B Mitsu	bishi Electric 2-wire X Center
A (5+5L/1,000)μmp-p B + S (3+3L/1,000)μmp-p C	0.1 H 0.1 Z SIEM	bishi Electric 4-wire Y Fixed to 10mm from left IENS AG DRIVE-CLiQ Y end of effective length
L: Effective length(mm) E	0.5 J 0.5 SIEMENS AC 1 K 1 Mitsubishi Ele	G: Y only setric, FANUC: X only
	S, A *Please cons ctric: S, A, B, C for arbitrar	ult our representative separately
FANUC: S, A,	B, C, D, E, T, F, G, H, I, J, K	
[▽] Cable seath (covering)       Type     Cable specification	CH22	CH22
S PU (Polyurethane, Siemens Motion connect [%] Scale side connector	.t. 800+)         Solution           Remarks         a           Charles         a           Charles         a           Charles         c	b a CH22-050NSFY b CH22
Type Specification M Scale head connector	Remarks a CH22-050NSMF	
F M12 connector (Female) made by Phoenix Cont	Relay/	
E M12 connector (Female) with panel mount relay made by Phoenix Contact	Waterproofing/ a C	H22-100NSMY b
[#]Controller side connector	example) exam Cable length 5m Cabl	
Type Specification None Open-end	Remarks Without conduit With PU sheath PU s	out conduit Without conduit heath PU sheath
Y RJ45 connector made by YAMAICHI ELECTRONICS Z RJ45 connector (water proof) made by YAMAICHI ELECTRON	Adupts No machine toul VICS Relay Original of Magnescale Origi Controller side connector Cont	e side connector Scale side connector nal of Magnescale M12 (Female) roller side connector
F M12 connector (Male) made by Phoenix Cont	tact Relay/Waterproofing M12 (male) made by RJ45 Phoenix Contact YAM	i made by RJ45 made by AICHI ELECTRONICS YAMAICHI ELECTRONICS
[×]Controller side eres store		
[**]Controller side connector Type Specification Remarks	CH23	CH23
Without With Earth wire Z - Scale side connector should be 10P JN2		b a CH23-050NPMA b
Z         -         Open-end         Aviation Electronics Industry or 2P made           None         -         Standard		b a CH23-050NPMA b CH23
M - 10P made by Sumitomo 3M Mitsubis	C (INC serial, ABS)	si de
	C (INC serial, ABS) a C	CH23-100NVM b
N - 12P R04 (Male) made by TAJIMI ELECTRONICS Relay	(fixed) example) exam	
[#]Scale side connector Type Specification	Without conduit Without Remarks PVC sheath PVC	but conduit Without conduit sheath PVC sheath
None Original of Magnescale A 10P JN2 (Female) made by Japan Aviation Electronics Indu	Standard Scale side connector Scale Original of Magnescale Origin	side connector Scale side connector nal of Magnescale 10P JN2 (Female) made by
C 12P R04-9125JF8.5 made by TAJIMI ELECTRON	Controller side connector TUP Contr	roller side connector 10P Japan Aviation Electronics Industry by Sumitomo 3M Controller side connector 10P
		made by Sumitomo 3M
	Aviation Electronics Industry	made by Sumitomo 3M