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RSF Electronics, Inc.

2880 Gold Tailings Court
Rancho Cordova, CA 95670
Fax: (916) 852-6664
Tel: (916) 852-6660
http://www.rsf.net

MSA 670 SERIES LINEAR ENCODERS



- Dual Guided Encoder Head
- Large Mounting Tolerance
- Square Wave Output
- High Speed Operation

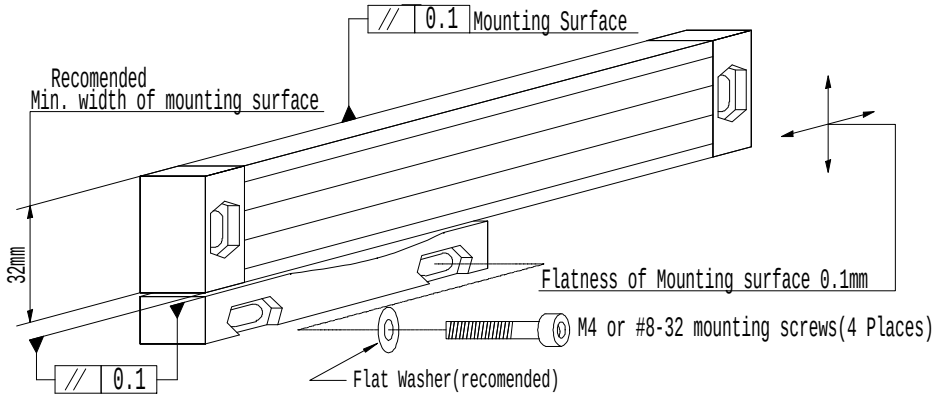
RSF Linear Encoders are designed for CNC machine closed loop positioning feedback. Digital Readouts are also available for manually operated machines.

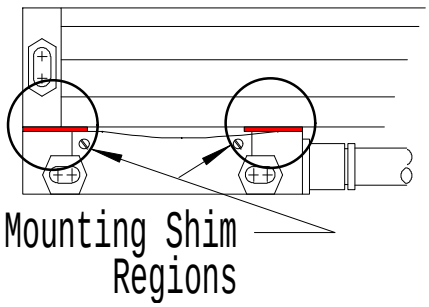
CE ISO 9001

Scale Model	System Resolution*	Accuracy Grades**	Grating Pitch	Max. Rated Velocity
Square wave Line Driver signals from integrated subdividing electronics				
MSA 6705	0.1µm	±2,±3 µm/m	10µm	0.5 m/s
MSA 6709	0.25µm	±2,±3,±5 µm/m	10µm	1.0 m/s
MSA 6707	0.5µm	±3,±5 µm/m	20µm	1.0 m/s
MSA 6706	1µm	±3,±5 µm/m	20µm	2.0 m/s
MSA 6708	2µm	±5 µm/m	40µm	2.0 m/s
MSA 6702	5µm	±5,±10 µm/m	20µm	2.0 m/s
MSA 6704	10µm	±10 µm/m	40µm	2.0 m/s
Sinusoidal voltage signals 1Vss				
MSA 6700-1	Dependent on external interpolation	±2,±3 µm/m	10µm	1 m/s
MSA 6700-2	Dependent on external interpolation	±3,±5,±10 µm/m	20µm	2 m/s
Sinusoidal micro-current signals				
MSA 6701	Dependent on external interpolation	±3,±5,±10 µm/m	20µm	2 m/s
MSA 6703	Dependent on external interpolation	±2,±3 µm/m	10µm	1 m/s

*** For TRUE INCH scales - Contact your RSF Representative**
**** Other accuracy grades upon request**

Standard Measuring Lengths: (mm) 70, 120, 170, 220, 270, 320, 370, 420, 470, 520, 620, 720, 820, 920, 1020, 1140, 1240, 1340, 1440, 1540, 1640, 1740, 1840, 2040, 2240, 2440





Standard Reference Index Locations (Home pulses Locations)

For measuring lengths up to 170mm: RI-02 = Middle of measuring length
For measuring lengths 220mm to 1020mm: RI-07 = 35 mm from each end
For measuring lengths greater than 1020mm: RI-08 = 45 mm from each end
Please contact RSF for available custom Reference Index locations.

RSF Standard Cable & Connector Specifications

Function	MSA67xx Cable 58023200	UHF Cable 58023198	7 Pin Din (L70) Sq Wave	12 Pin Din (L120) Sq Wave	9 Pin 'D' 15 Pin 'D' Sq Wave	25 Pin 'D' Sq Wave	Bendix PT06 Sq Wave	Connei L121 1V p-p	Connei L91 µA
A +	Green	Green	3	C	1	1	A	5	1
A -	Yellow	Yellow	---	D	2	2	---	6	2
B +	Pink	Orange	4	E	3	3	B	8	5
B -	Red	Red	---	L	4	4	---	1	6
RI +	Brown	Violet	6	G	5	5	F	3	7
RI -	Gray	Blue	---	H	6	6	---	4	8
5 v	Black	Black	5	K , M**	7	23	C	2 7 12	3
0 v	White	Brown	1	B, F**, J**	8	14	D	10 11	4
Shield	Bare	Bare*	7	A	9	8	E	9 inner*	9 inner*

* Outer shield to connector housing ** Optional

Connector Types

7 Pin Din:	L70	Cable, Male	12 Pin Din:	L120	Cable, Male	'D' Style:	9 Pin 'D' Male
	K70	Cable, Female		K120	Cable, Female		15 Pin 'D' Male
	F70	Chassis, Female		F120	Chassis, Female		25 Pin 'D' Male
9 Pin Connei:	L91	Cable, Male	12 Pin Connei:	L121	Cable, Male	Bendix:	PT06, Male

Cable Length & Special Connector Requirements

- A Three meter vinyl cable is standard.
- Custom cable lengths are rounded to the nearest 100 mm.
- Cable length is measured from the back of the connector strain relief to the strain relief on the encoder head.
- Standard tolerances for RSF cables are -0 mm +20 mm/meter of cable length.
- When ordering cables and connectors with special requirements. Please obtain a Cable Code Number from RSF Electronics.

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Encoder Specifications (670 Series)

Maximum acceleration:	130ft/sec² (40m/sec²)
Maximum vibration:	150ft/sec² (45m/sec²) [40 to 2000 Hz]
Maximum shock:	15 g's for 8 ms
Scale coefficient of thermal expansion:	5.2 micro inch/in/°F 9.4 microns/m/°C
Encoder head drag:	<11 oz (<3 N) std. lip seals <1 oz. (<0.2 N) low drag seals
Encoder head hysteresis:	≤ 0.2µm
Weight	
Extrusion:	0.7 oz/in. Length of scale
Encoder head:	3 oz. – without cable
Environmental protection:	Anodized & Nickel Plated Surfaces
Operating temperature:	32°F to 120°F (0°C to 50°C)
Storage temperature:	0°F to 158°F (-20°C to 70°C)
Humidity:	20% to 80% non condensing
Operating principle:	Light transmission, morier fringe
Light Source:	LED, MIL SPEC
Light Receiver:	SI elements
Signal tolerance ratio:	180°: 180°±10%
Phase shift tolerance:	90°±15%

Power supply:	Sinusoidal voltage +5v ±5%, max 100 mA Sinusoidal micro current +5v ± 5%, max 90 mA Square wave +5v ± 5%, max 150 mA
Output signals:	Square wave - line driver (RS422 standard) IC 34C87/TI SN75ALS194 Sinusoidal Voltage 0.6 to 1.2 Vss (1.0 Vss typical) with Terminating resistor Zo=120Ω for A & B channels 0.2 to 0.85 Vss (0.4Vss typical) with terminating Resistor Zo=120Ω for RI channel Microcurrent Sine Wave 7-16µA (11.5 µA typical) with 1 k ohm resistor for A & B channels 2-8µA 5µA (typical) with 1 k ohm resistor for Reference Index pulse [MSA 6701 & 6703]
Cable lengths:	3m (10 ft.) standard, armor optional. Other lengths available on request.
Scale housing sealing:	Dirt and water spray protection using custom designed lip seals
Life Expectancy:	40 x 10^6 meters

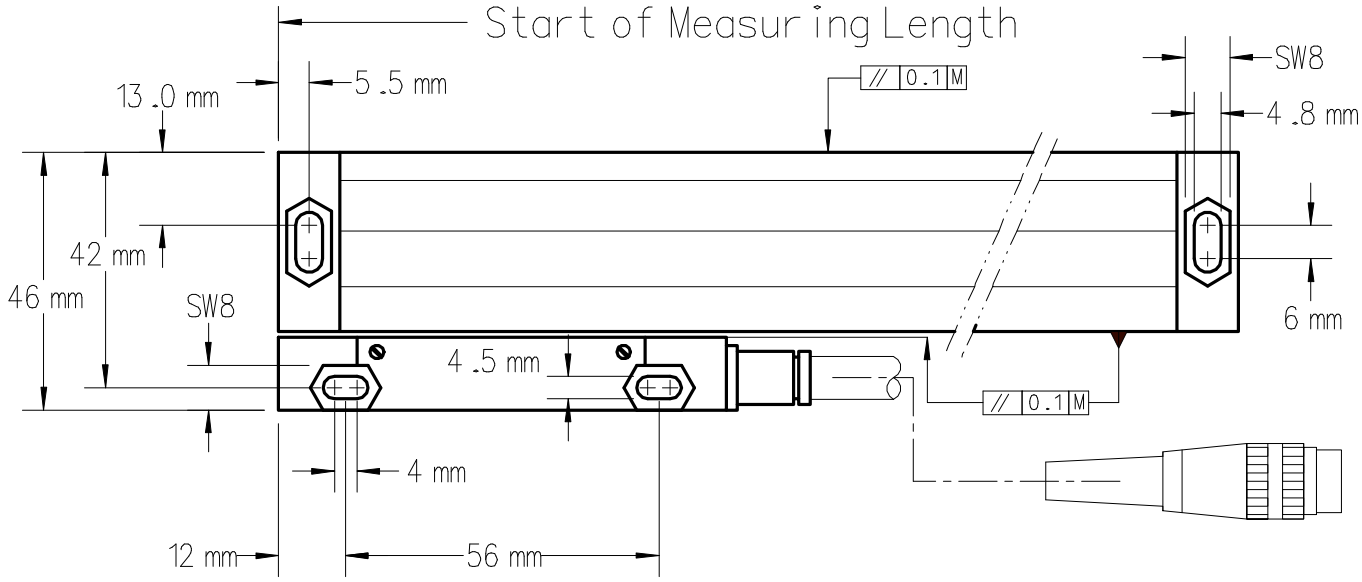
HOW TO ORDER LINEAR ENCODERS

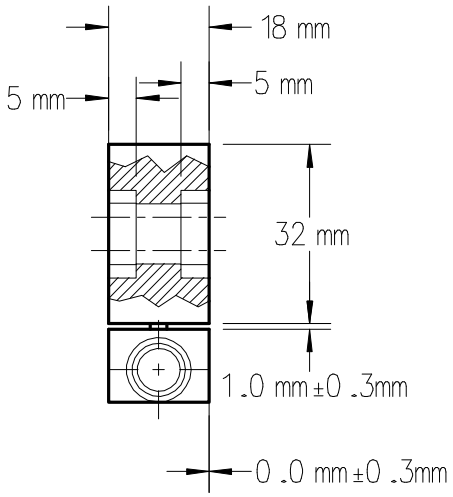
Order example: MSA 6706 / 220 / 5 / RI-07 / L120 / 3M

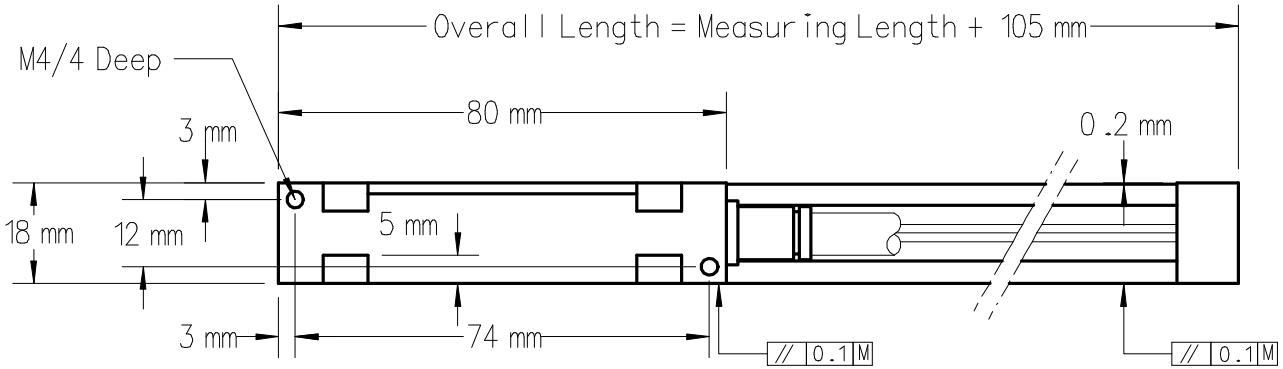
Model: MSA 6706
Measuring length: 220 = 220 mm
Accuracy: 5 = ±5 µm/m accuracy
Reference Index: RI-07 = 35 mm from each end
Connector: L120 = 12 pin male cable
Cable: 3M = 3meter cable

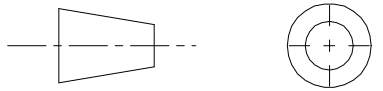
Ver 1/98

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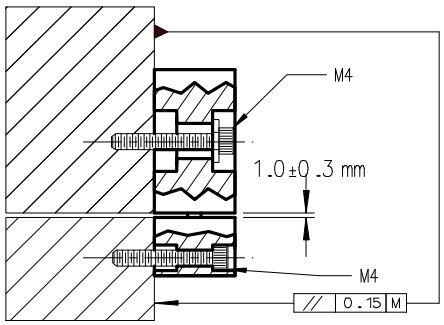


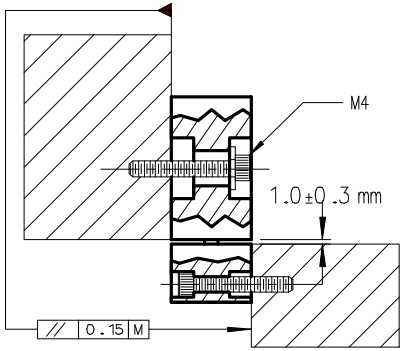


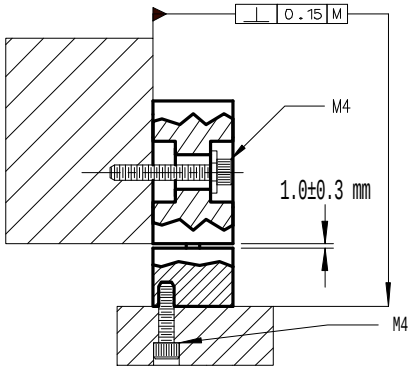
RSF Electronics

CE ISO 9001

MSA670_ Series
Linear Encoders







Mounting Examples

Artisan Technology Group is an independent supplier of quality pre-owned equipment

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