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TECHNOLOGY GROUP

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MSA 170

Scale model	System resolution	Accuracy grades *	Grating pitch *	Max. velocity (Edge separation a_{min})
• **Sinusoidal voltage signals 1 V_{pp}**				
MSA 170.03	depending on external subdividing	±3, ±5, µm/m	20 µm	1 m/s
• **Sinusoidal micro-current signals**				
MSA 170.13	depending on external subdividing	±3, ±5, µm/m	20 µm	1 m/s
• **Square wave Line Driver signals with integrated Subdividing**				
MSA 170.23	5 µm	±3, ±5 µm/m	20 µm	1 m/s (3.3 µs)
MSA 170.63	1 µm	±3, ±5 µm/m	20 µm	1 m/s (500 ns)
MSA 170.73	0.5 µm	±3, ±5 µm/m	20 µm	1 m/s (300 ns)
MSA 170.53	0.2 µm	±3, ±5 µm/m	20 µm	0.6 m/s (300 ns)
MSA 170.83	0.1 µm	±3, ±5 µm/m	20 µm	0.3 m/s (300 ns)

* **Other accuracy grades or grating pitches (e.g. Inch) upon request**

Standard measuring lengths: (mm)
50, 70, 120, 170, 220, 270, 320, 370, 420, 470, 520,

Measuring type: glass scale

Reference mark (RI): selectable
MSA 170.xx **K**
Distance coded Reference Marks (**K**): after travelling 20 mm the absolute position will be shown on the display.

MSA 170.xx
One Reference Mark in the middle of the measuring length, or 10 mm from either end of the measuring length (excluding ML 50 mm).

Option:
One Reference mark at any location, or two or more Reference Marks separated by distances of n x 25 mm.

Required moving force: < 1 N

Environmental sealing DIN 40050:
IP 53 (with standard sealing lips)
IP 64 with DA300 (DA300 see page 45)

Permissible vibration: 100 m/s² (40 to 2000 Hz)
Permissible shock: 150 m/s² (8 ms)

Permissible temperature:
-20°C to +70°C (storage), 0°C to +50°C (operation)

Weight (approx.)
22 g/100 mm (scale spar) + 35 g (scanning head without cable)

Signal-outputs (optional):

• **Sinusoidal voltage signals**
MSA 170.03

Power supply:
+5V ±5%, max. 75 mA (unloaded)

Output signals:
Encoder signals: 0.6 to 1,2 Vpp, typical 1 Vpp
with terminating resistor Zo = 120 Ω
Reference pulse:
0.2 to 0.85 Vpp, typical 0.4 V (useable component)
with terminating resistor Zo = 120 Ω

Max. output frequency:
100 kHz (with 3 m cable)

• **Sinusoidal micro-current signals**
MSA 170.13

Power supply:
+5 V ±5%, max. 75 mA

Output signals:
Encoder signals: 7 to 16 µApp,
typical 11.5 µApp at 1 KΩ

Reference pulse: 2 to 8 µA,
typical 5 µA (useable component) at 1 KΩ

Max. output frequency:
50 kHz (with 3 m cable)

• **Square wave signals** (single ended)
with integrated Subdividing Electronics

• **Square wave signals** (differential)
via Line Driver RS 422 standard
with integrated Subdividing Electronics
MSA 170.23 = times1
MSA 170.63 = times5
MSA 170.73 = times10
MSA 170.53 = times25
MSA 170.83 = times50

Power supply:
+5 V ±5%, max. 120 mA (unloaded)

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