

MSA 170 Technical data

Scale model	System resolution	Accuracy grades*	Grating pitch*	Max. velocity (Edge distance)
• 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 (> 250 ns)
MSA 170.73	0,5 µm	±3, ±5 µm/m	20 µm	1 m/s (> 250 ns)
MSA 170.53	0,2 µm	±3, ±5 µm/m	20 µm	0,4 m/s (> 250 ns)
MSA 170.83	0,1 µm	±3, ±5 µm/m	20 µm	0,2 m/s (> 250 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 shown on the display.

MSA 170.xx

One Reference mark in the middle of the measuring length or 10 mm from both ends of measuring length. (excluding ML 50 mm)

Option:

One Reference mark at any location, or two or more RI's separated by distances of n x 25 mm.

Required moving force: < 1 N

Environmental sealing DIN 40050: IP 53

IP 64 with DA300 (DA300 see page 57)

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. 90 mA (unloaded)

Output signals:

Encoder signals: 0,6 to 1,2 V_{pp}, typical 1 V_{pp} with terminating resistor Z₀ = 120 Ω

Reference pulse:

0,2 to 0,85 V_{ss}, typical 0,4 V (useable component) with terminating resistor Z₀ = 120 Ω

Max. output frequency:

100 kHz (with 3 m cable)

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

Power supply:

+5 V ±5%, max. 90 mA

Output signals:

Encoder signals: 7 to 16 µA_{pp}, typical 11,5 µA_{pp} 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 = times 1

MSA 170.63 = times 5

MSA 170.73 = times 10

MSA 170.53 = times 25

MSA 170.83 = times 50

Power supply:

+5 V ±5%, max. 200 mA (unloaded)