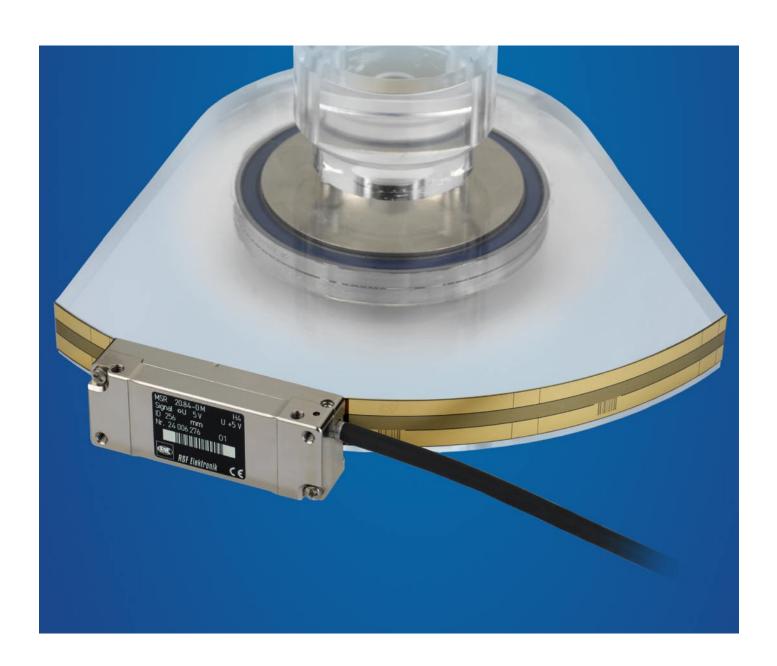# MSR 20

Modular Segment Rotary Encoder
with singlefield scanning

MSR 20 Technical data

Scanning unit: 40 µm grating pitch

Scale model	Grating pitch	Integrated interpolation	Max. velocity	Max. output frequency resp. edge separation a_{min}	Signal-outputs (optional):
• **Sinusoidal voltage signals**					
MSR 20.04	40 µm	-	10 m/s	250 kHz	
• **Square wave signals via Line Driver with integrated Subdividing**					
MSR 20.64	40 µm	times 5	6 m/s	300 ns	
MSR 20.74	40 µm	times 10	3 m/s	300 ns	
MSR 20.44	40 µm	times 20	2.2 m/s	200 ns	
MSR 20.54	40 µm	times 25	1.8 m/s	200 ns	
MSR 20.84	40 µm	times 50	1.8 m/s	100 ns	
MSR 20.94	40 µm	times 100	0.9 m/s	100 ns	

Signal-outputs (optional):

- **Sinusoidal voltage signals MSR 20.00**

Power supply:
+5 V ±5%, max. 130 mA (unloaded)

Output signals:
Encoder signals: 0.6 Vpp to 1.2 Vpp, typ. 1 Vpp with terminating resistor Zo = 120 Ω
Reference pulse: 0.2 V to 0.85 V, typical 0.5 V (useable component) with terminating resistor Zo = 120 Ω

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

- **Square wave signals** (differential) **via Line Driver RS 422 Standard with integrated Subdividing Electronics**
  MSR 20.64 = times 5
  MSR 20.74 = times 10
  MSR 20.44 = times 20
  MSR 20.54 = times 25
  MSR 20.84 = times 50
  MSR 20.94 = times 100

Power supply:
+5 V ±5%, max. 165 mA (unloaded)

Scale tape – ring segment: version MSR 20.xx **MKS**

Scale unit: MKS = steel tape scale with adhesive tape

Accuracy of the grating pitch (stretched)**:** ±15 µm/m

Mounting aid: optional accessories
Mounting control: electronic signal test/set-up boxes PG-x

Operating temperature range: 0°C to +50°C
(coefficient of expansion of the shaft between 9 x 10^{-6} K^{-1} and 12 x 10^{-6}K^{-1})
Temperature range of storage: -20°C to +70°C

Weight depending (approx.)**:** 30 g (scanning unit without cable), 20 g/m (steel tape scale)

adjust to max. signal or RI-position

steel scale (developed length)

measuring length + 30

measuring length

reference mark

K = required mating dimensions
D = shaft diameter
reference mark (RI):
any position, additional reference marks
separated by n x 50 mm