TECHNICAL DATA

Scale model electronic version	Output signals	System resolution [µm]	Accuracy grades [µm/m]	Grating pitch [µm]	Integrated interpolation	Maximum velocity [m/s]	Max. output-frequency [kHz]
MSA xxx.**03**	~ 1 Vpp	dep. on external interpolation	±3, ±5	20	--	2.0	100
MSA xxx.**01**	~ 1 Vpp	dep. on external interpolation	±3, ±5	10	--	2.0	200
MSA xxx.**00**	~ 1 Vpp	dep. on external interpolation	±2, ±3, ±5	8	--	2.0	250
							Edge separation a_{min}
MSA xxx.**23**	⎍	5.0	±3, ±5	20	times 1	2.0	1.25 µs
MSA xxx.**33**	⎍	2.5	±3, ±5	20	times 2	2.0	625 ns
MSA xxx.**63**	⎍	1.0	±3, ±5	20	times 5	2.0	250 ns
MSA xxx.**73**	⎍	0.5	±3, ±5	20	times 10	1.92	250 ns
MSA xxx.**61**	⎍	0.5	±3, ±5	10	times 5	1.92	250 ns
MSA xxx.**71**	⎍	0.25	±3, ±5	10	times 10	0.96	250 ns
MSA xxx.**51**	⎍	0.1	±3, ±5	10	times 25	0.77	125 ns
MSA xxx.**81**	⎍	0.05	±3, ±5	10	times 50	0.38	125 ns
MSA xxx.**30**	⎍	1.0	±2, ±3, ±5	8	times 2	2.0	250 ns
MSA xxx.**70**	⎍	0.2	±2, ±3, ±5	8	times 10	0.77	250 ns
MSA xxx.**80**	⎍	0.04	±2, ±3, ±5	8	times 50	0.3	125 ns
MSA xxx.**90**	⎍	0.02	±2, ±3, ±5	8	times 100	0.15	125 ns

Standard measuring lengths (**ML**): [mm]
70, 120, 170, 220, 270, 320, 370, 420, 470, 520, 570, 620, 670, 720,
770, 820, 870, 920, 970, 1040, 1140, 1240, 1340, 1440, 1540, 1640,
1740, 1840, 1940, 2040, 2240, 2440, 2640, 2840, 3040 (20 µm grating pitch possible)
(8 or 10 µm grating pitch only possible up to measuring length 1140 mm)
(other measuring lengths on request)

Scale unit:
- Glass scale ($\alpha \approx 8{,}5 \times 10^{-6}$/K)
- Glass ceramic scale ($\alpha \approx 0 \times 10^{-6}$/K)
  up to ML 1440 mm
  (longer measuring lengths on request)

Location of reference mark (**RI**):
- Distance-coded reference mark (**K**)
  after travelling max. 20 mm the absolute position is available
- Optional: one reference mark at any location
  additional reference marks can be selected by distances of n x 50 mm

Required moving force:
- With standard sealing lips < 2.0 N
- With low drag respectively without any sealing lips < 0.1 N

Environmental sealing acc. EN 60529 resp. IEC 60529:
- With standard sealing lips IP 53
- With DA 300: IP 64 (see page 33)

Permissible vibration: 100 m/s² (40 to 2000 Hz)
Permissible shock: 200 m/s² (8 ms)

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

Weight (approx.):
MSA 470, MSA 570: 460 g+2,5 g/mm (ML)
MSA 4x1, MSA 5x1: 295 g+2,5 g/mm (ML)
+ 175 g (reading head without cable)

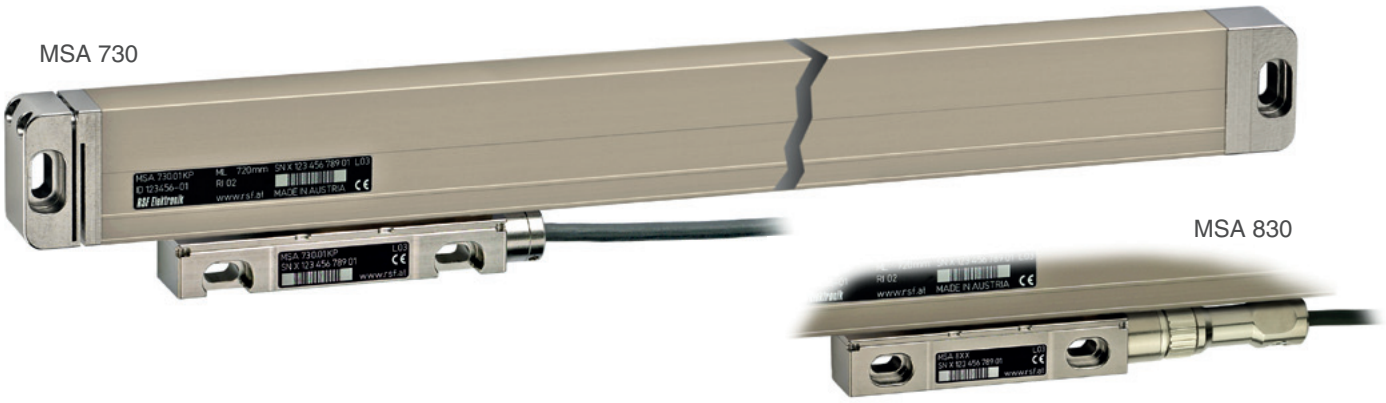
MSA 7xx , MSA 8xx: 75 g+0,57 g/mm (ML)
+ 50 g (reading head MSA **7**xx without cable)
+ 65 g (reading head MSA **8**xx without cable)

Weight of cable:
30 g/m

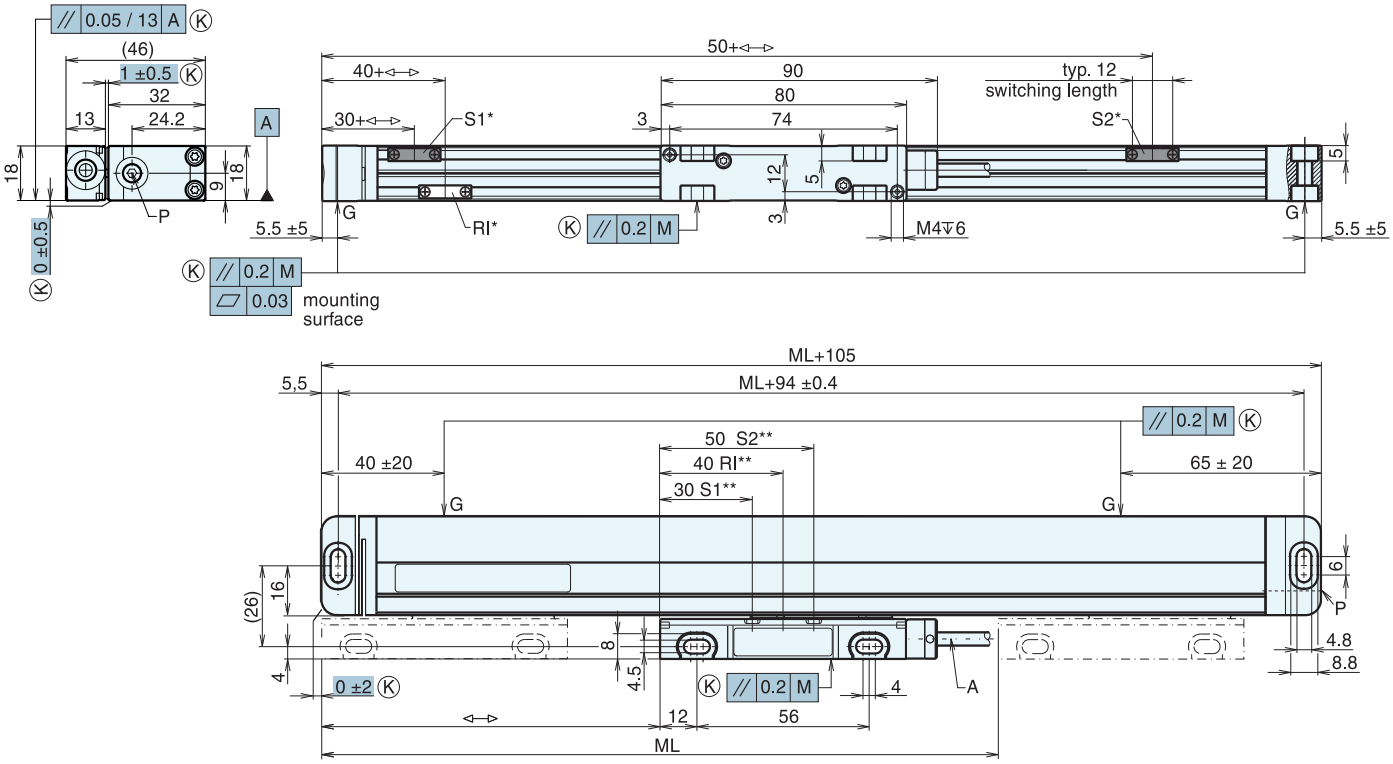
Power supply:
- Sinusoidal voltage signals ∿ 1 Vpp
  +5 V ±5 %, max. 150 mA (unloaded)
- Square-wave signals via Line Driver ⎍
  +5 V ±5 %, max. 180 mA (unloaded)

RoHS-conformity:
The Linear Encoders of the MSA 4, MSA 5, MSA 7 and MSA 8 series comply with the guideline of the RoHS- directive (2002/95/EG) on the restriction of the use of certain hazardous substances in electrical and electronic equipment

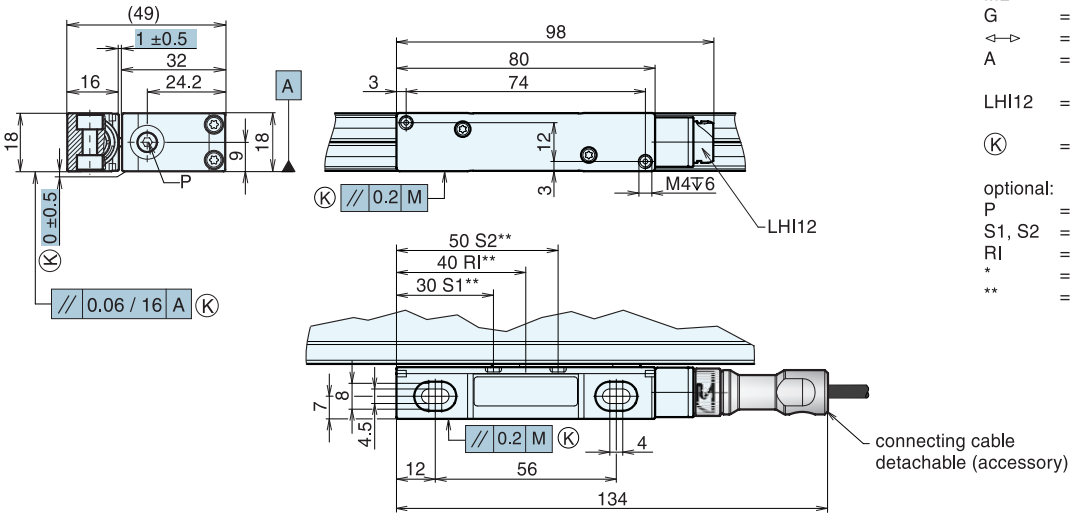
MSA 730, MSA 830



Dimensions, mounting tolerances MSA 730:



Dimensions, mounting tolerances MSA 830:



M	=	machine guideway
ML	=	measuring length
G	=	gauging points
◁▷	=	0 ... ML
A	=	cable
LHI12	=	male connector
K	=	customer mounting dimensions
optional:		
P	=	M5 air inlet
S1, S2	=	switch signals
RI	=	selectable reference mark
*	=	actuator magnet
**	=	sensor position