RSF Elektronik

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MSA 373, 374, 375

SEALED LINEAR ENCODERS WITH SELF GUIDING

MSA 373, MSA 374, MSA 375 - TECHNICAL DATA

READING HEAD AE MSA 37x

Model	MSA 37x	MSA 37x
Interface	⎍ TTL	⎍ TTL
Measuring step	5.0 µm	1.0 µm
Max. traversing speed	1.0 m/s	1.0 m/s
Edge separation a_{min}	1.6 µs	800 ns
Electrical connection	Cable: 0.5, 1 m or 3 m with D-sub connector 15-pin	
Voltage supply	+5 V ±5 %	
Power consumption max.	660 mW (without load)	
Current consumption max.	120 mA (without load)	
Vibration 40 Hz – 2000 Hz	150 m/s^2	
Shock 8 ms	300 m/s^2	
Operating temperature	0 °C to 50 °C	
Storage temperature	–20 °C to 70 °C	
Mass	▪ 171 g (reading head without cable) ▪ Cable: 30 g/m, connector: D-sub connector: 28 g	

SCALE UNIT

Model	**MSA 373, MSA 374, MSA 375**

Mounting version	Mounting via mounting holes on the ends of the scale housing
	▪ **MSA 373**:
	  ▪ Additional mounting brackets for a 90° mounting
	  ▪ Mounting of the reading head via spring rod
	  ▪ Mounting of the reading head via coupling bar (optional accessory)
	▪ **MSA 374**: Mounting of the reading head via spring rod
	▪ **MSA 375**: Mounting of the reading head via coupling bar (optional accessory)

Standard measuring lengths (ML): [mm]	70, 120, 170, 220, 270, 320, 370, 420, 470, 520, 620, 720, 770, 820, 920, 1040, 1140, 1240, 1340, 1440, 1540 (other ML on request)
Graduation carrier	Glass scale ($\alpha_{therm} \approx 8.5 \times 10^{-6}\ K^{-1}$), grating period: 200 µm
Accuracy grade (at 20 °C)	±10 µm/m

Location of the reference mark (RI):	▪ One reference mark in the middle of measuring length e
	▪ Reference mark 35 mm from either end of measuring length
	▪ Optional:
	  ▪ One reference mark at any location
	  ▪ Additional reference marks can be selected by distances of n × 50 mm

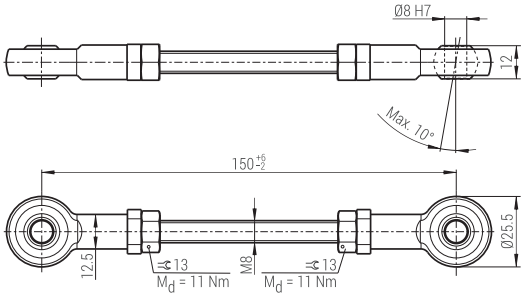
Switch points	The position of the two switch points (S1 and S2) within the measured length can be selected by switch magnets by the customer
Required moving force	< 5.0 N
Protection EN 60529	IP 53
Mass scale spar (approximately)	237 g + 1.17 g/mm (ML)

CONFORMITIES AND CERTIFICATIONS

CE	▪ RoHS: 2011/65/EU, 2015/863/EU ▪ EMV: 2014/30/EU
UKCA	▪ SI 2012/3032 RoHS Regulations ▪ SI 2016/1091 EMC Regulations
Product-Certifications	UL, CSA, EN, IEC 61010-1

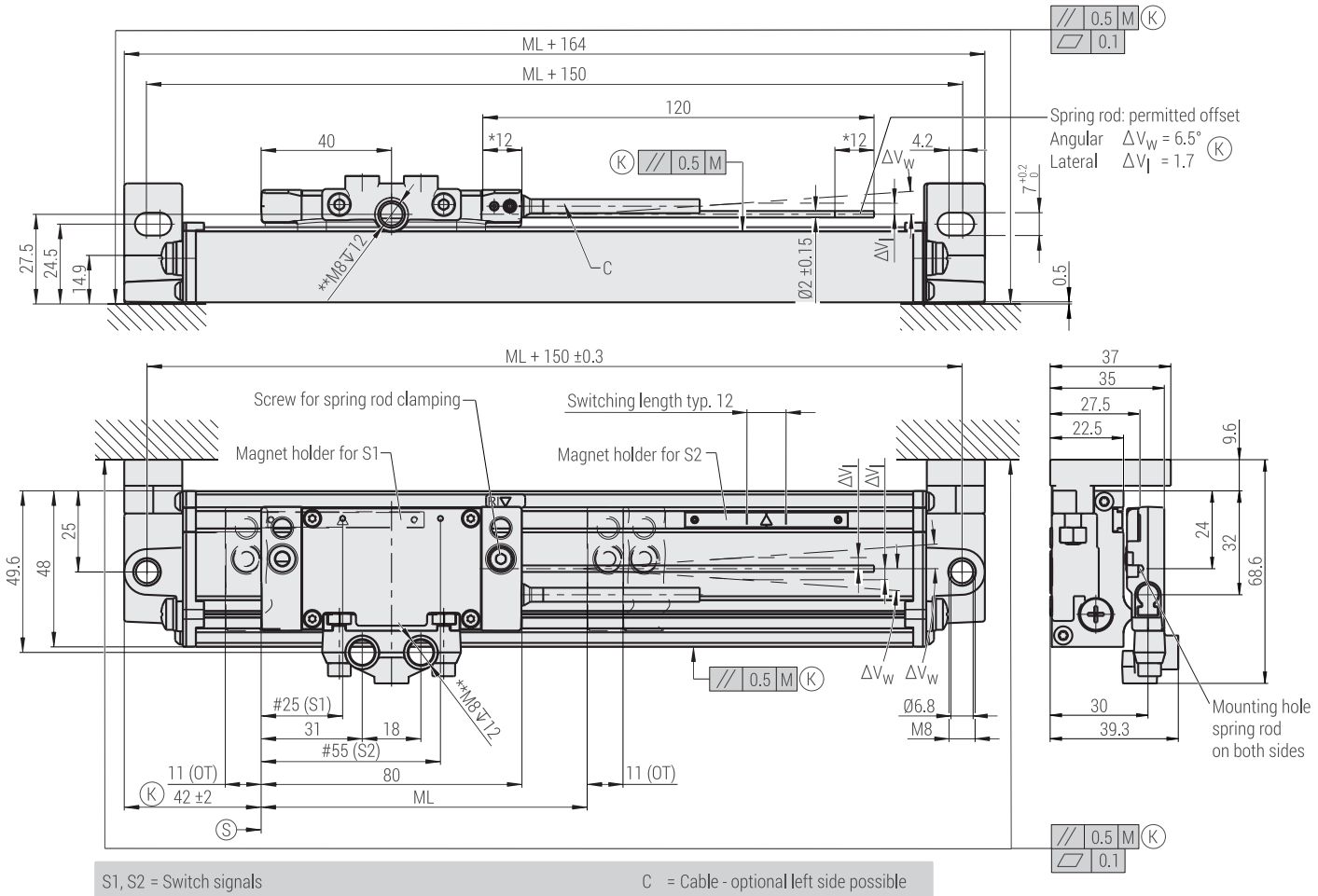
ACCESSORY: CB8-150 coupling bar
(only for MSA 373 and MSA 375)

Axis distance: 150 mm (other distances on request).
Included in delivery:
2 hexagon socket screws M8 x 20 ISO 4762 for mounting.



MSA 373, MSA 374, MSA 375 DIMENSIONS, MOUNTING POSSIBILITIES

MSA 373

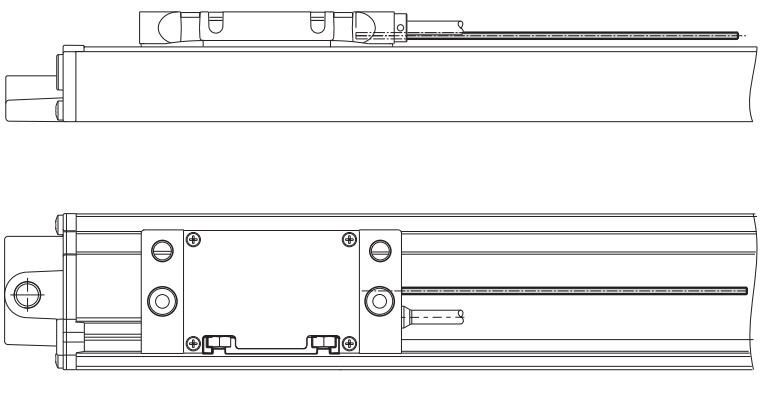


S1, S2 = Switch signals
Switch positions S1 and S2 free selectable (allen wrench 0.9 mm)
= Sensor position
Spring rod clamping on both sides possible (allen wrench 3 mm)
* Clamping length spring rod
** Fastening screw thread for coupling bar

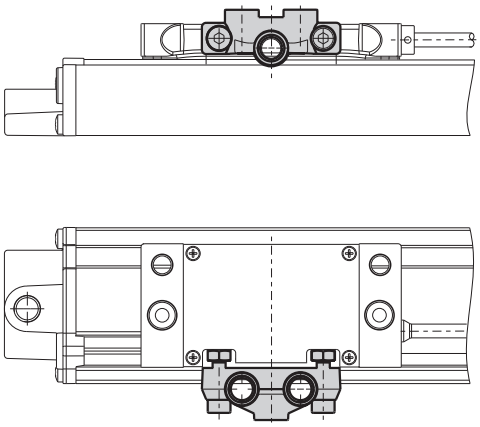
C = Cable - optional left side possible
ML = Measuring length
M = Machine guideway
OT = Overtravel
(K) = Required mating dimensions
(S) = Beginning of the measuring length

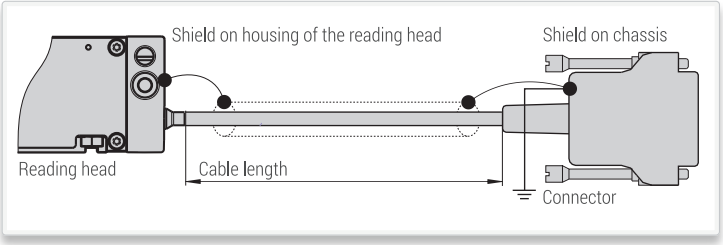
mm
Tolerancing ISO 8015
ISO 2768:1989 - m H
< 6 mm: ±0.2 mm

MSA 374



MSA 375

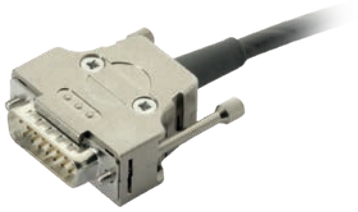




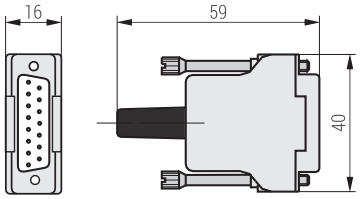
Cable	Material	Cycles	Bending radius	
Ø 4.3 mm	Shielded PUR cable	Drag chain: > 5.000.000 Torsion: > 300.000		

MALE CONNECTORS, PIN ASSIGNMENTS

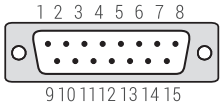
D-sub connector, 15-pin



Dimensions (male, 15-pin, mass: 25 g)



Pin assignment (View on pins)

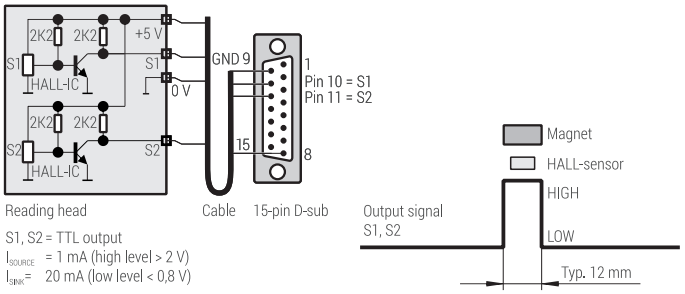


Pin	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Sinusoidal voltage signals 1 V_{PP}	Occupied	0 V Sensor	Occupied	RI–	A2–	A1–	V+ Sensor	V+	0 V	S1*	S2*	RI+	A2+	A1+	nc
TTL-signals	Occupied	0 V Sensor	$\overline{US}$	$\overline{RI}$	$\overline{T2}$	$\overline{T1}$	V+ Sensor	V+	0 V	S1*	S2*	RI	T2	T1	nc

- Sensor: the sensor pins are bridged in the chassis with the particular power supply.
- * Version without switch signals (version K) = nc.
- Shield is connected with the chassis.
- Pins or wires marked “occupied” or “nc” must not be used by the customer.

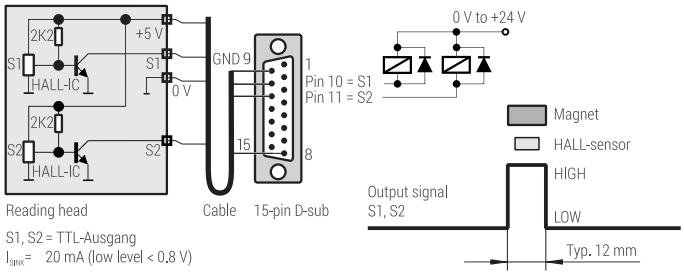
SWITCH SIGNAL OUTPUT

VERSION H: TTL output (active high)



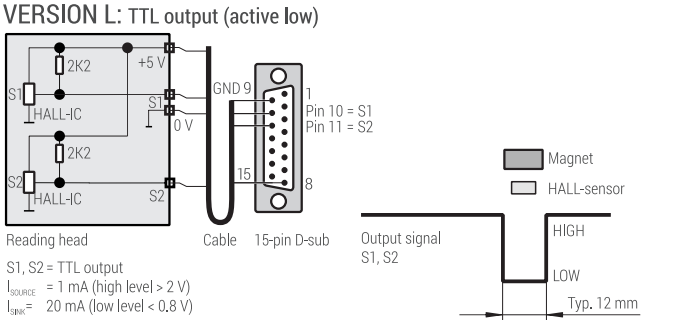
S1, S2 = TTL output
I_{SOURCE} = 1 mA (high level > 2 V)
I_{SINK} = 20 mA (low level < 0,8 V)

VERSION Z: Open collector output (active high impedance)



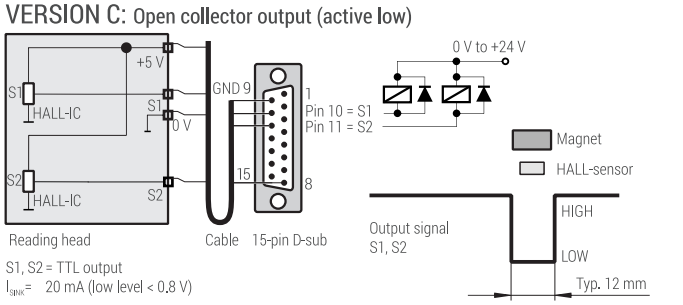
S1, S2 = TTL-Ausgang
I_{SINK} = 20 mA (low level < 0.8 V)

VERSION L: TTL output (active low)



S1, S2 = TTL output
I_{SOURCE} = 1 mA (high level > 2 V)
I_{SINK} = 20 mA (low level < 0.8 V)

VERSION C: Open collector output (active low)



S1, S2 = TTL output
I_{SINK} = 20 mA (low level < 0.8 V)

According to factory default setting the actuator magnets are placed at the beginning (S1) and at the end (S2) of measuring length and can be moved by the customer.

Date 07/2024 ■ Art.No.1340647-01 ■ Doc.No. D1340647-02-A-01 ■ Technical adjustments in reserve!

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