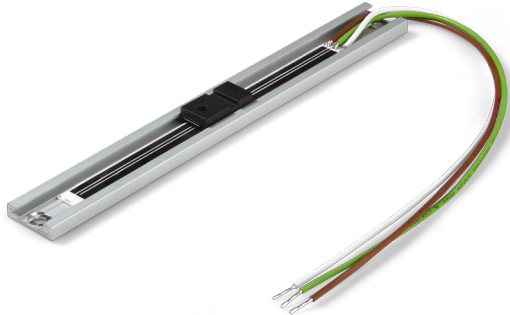


Data Sheet for Linear Sensors

Potentiometric Linear Transducer

Series MBX



- Measurement stroke 100..200 mm
- Flat design (Height < 7 mm)
- Short length (No push rod needed)
- Infinite resolution (Conductive plastic potentiometer)
- Absolute measurement signal without processing delay

Because of the low profile design and the compact wiper carrier part (no push rod is needed) this sensor gives the best opportunity for integration into space saving applications. Caused by the potentiometric measurement principle that needs no signal processing electronics, the absolute measurement signal is immediately available after power on and without delay and infinite resolution meanwhile operation.

| Electrical Data | MBX50 | MBX100 | MBX150 | MBX200 |
|--|--|-------------|-------------|-------------|
| Effective electrical travel 1.) | 50 ±0,3 mm | 100 ±0,3 mm | 150 ±0,3 mm | 200 ±0,3 mm |
| Nominal total resistance 1.) | 2,5 kOhm | 5 kOhm | 7,5 kOhm | 10 kOhm |
| Resistance tolerance 1.) | ±30 % | | | |
| Independent linearity (best straight line) 1.) | ±1 % | | | |
| Max. / recommended wiper current 1.) | 1 mA (@ 40°C, 1 min in case of failure) / 1 µA | | | |
| Power rating @ 70°C (0W @ 105°C) | ≤ 25 mW | ≤ 50 mW | ≤ 75 mW | ≤ 100 mW |

| Mechanical Data, Environmental Conditions, Miscellaneous | MBX50 | MBX100 | MBX150 | MBX200 |
|--|---------------------------------|---------------|---------------|-------------|
| Mechanical Stroke 1.) | 62 ±0,3 mm | 105,5 ±0,3 mm | 154,5 ±0,3 mm | 205 ±0,3 mm |
| Lifetime (90% el. effective stroke) 2.) | 5 Mio. movements | | | |
| Bearing | Sleeve bearing | | | |
| Max. operational speed | 0,5 m/s | | | |
| Starting force @ ambient temperature 1.) 2.) | < 1 N | | | |
| Operating temperature range | -15..+70°C | | | |
| Storage temperature range | -30..+85°C | | | |
| Protection grade (IEC60529) | IP00 | | | |
| Vibration (IEC 68-2-6, Test Fc) | 10 g (55..2000 Hz, 0,75mm, 12h) | | | |
| Shock (IEC 68-2-27, Test Ea) | 50 g, (Half sine, 11 ms (18x)) | | | |
| Housing length | 105 ±0,3 mm | 150 ±0,3 mm | 200 ±0,3 mm | 250 ±0,3 mm |
| Mass ca. | 16 g | 21 g | 27 g | 33 g |
| Fastening parts (not included in delivery) | Screws M3 ISO7380 | | | |
| Material groove / slider | Aluminium / engineering plastic | | | |
| Connection type | Single leads AWG22 ca. 175 mm | | | |

1.) According IEC 60393

2.) Determined by climatic conditions according to IEC 68-1, para. 5.3.1 without load collectives

Please note: Max. permissible supply voltage <75 VDC respectively <50 VAC in addition the max. power rating must be observed

Data Sheet for Linear Sensors

Potentiometric Linear Transducer

Series MBX

Order Code

| Description | Selection: standard=black/bold, possible options=grey/cursive | | | | |
|--|---|--------------|------------------|-------------|-------------------------------|
| Series: | MBX | | | | |
| Effective electrical travel ($\pm 0,3$ mm): | | | | | |
| 50 mm | 50 | R2,5K | | | |
| 100 mm | 100 | R5K | | | |
| 150 mm | 150 | R7,5K | | | |
| 200 mm | 200 | R10K | | | |
| Nominal total resistance: Depends on electrical travel | | | see above | | |
| Resistance tolerance: $\pm 30\%$ | | | | W30% | |
| Tolerance independent linearity: $\leq \pm 1\%$ | | | | | L1% |
| Electrical connection: Single leads (standard length 175 mm) <i>Option lead length in m</i> | | | | | E0,175 <i>Ex,xx</i> |

For higher quantities or on-going demand, additional options are available as described below

For example:

- Special electrical effective strokes like 300 mm
- Special mechanical modification of the aluminium groove (special mounting holes or groove length)
- Customized lead assemblies with/without connector
- Special aluminium groove to fit in the customer application
- Modifications of the wiper carrier part

General handling guidelines:

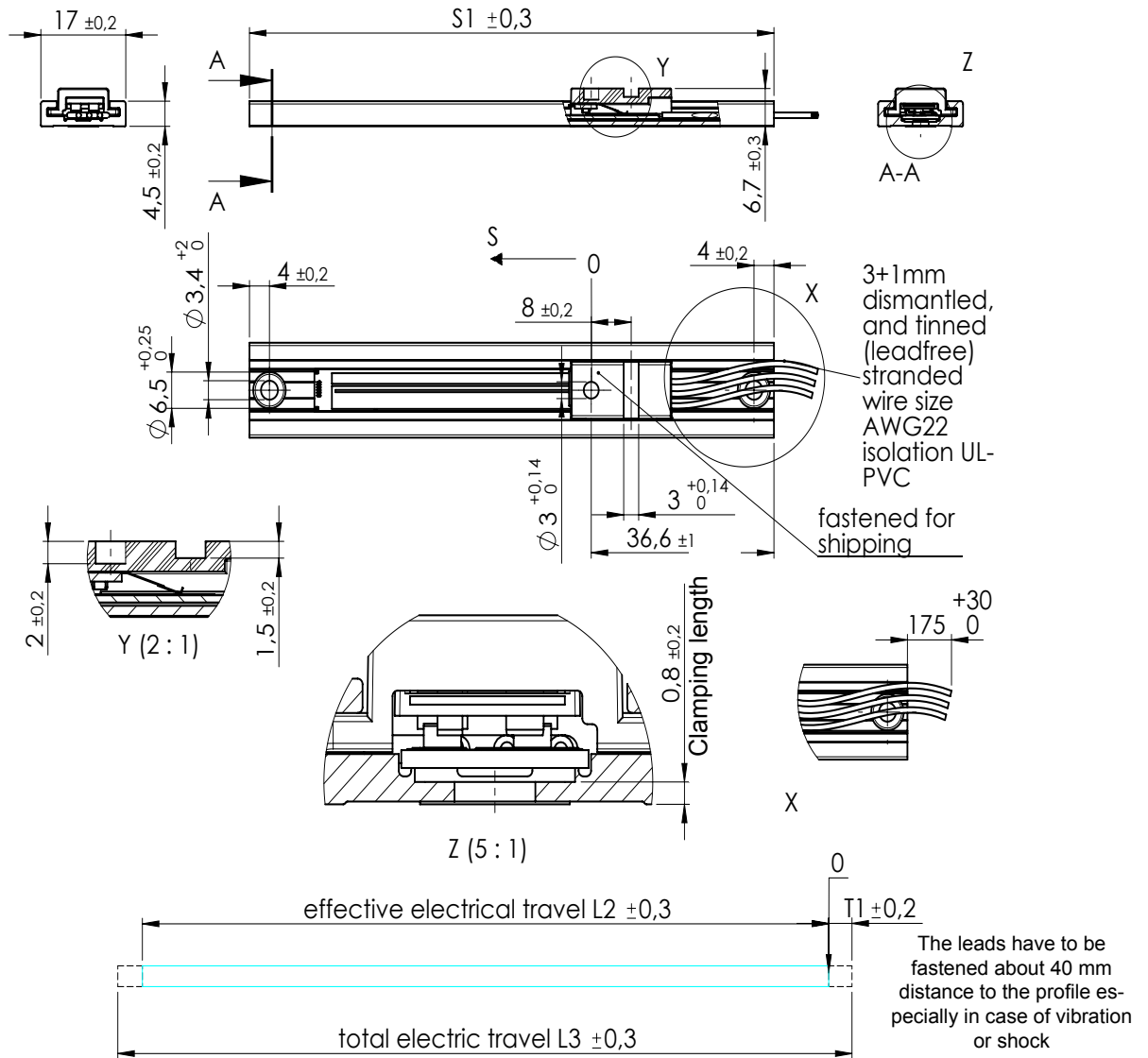
To ensure proper potentiometer function, requirements as listed below have to be maintained

- "Installation requirements" and "general operating data" to be respected at storage and system integration
- Slider operation permissible within effective electrical travel only at handling, system integration and sensor operation.
Slider operation beyond the limits of total electrical travel is not permissible (travel definitions see IEC60393-1 chapt. 4.4.5 and 4.4.6)
- Removing the product from package when processing by gripper (robot) or protective glove (manual handling) only.
Fingerprints on product are not permissible.
- Mechanical damage (Scratches, dents, deflections etc.) on resistance and on wiper element is not permissible
- Storage of product packed in package as delivered permissible only. Open storage (unpacked) is not permissible.
- Non system defilement (e.g. wear of actuator etc.) on resistance- and on wiper element is not permissible (see installation requirements and technical data also).
- Any kind of cleaning treatment on product is not permissible
- Evaporation of silicon in the environment is not permissible

Installation requirements:

- Sealed housing IP6X / IPX6S / IPX7S acc. IEC 60529
IPX9K acc. DIN 40050 part 9
- Air moisture 25 - 75% RH
- Grease (in the environment) Klüber Isoflex Topas NB52, Klüber Isoflex Super LDS18
- Oil none

Drawing



| Rev. | Title | S1 | L2 | L3 | T1 | Total Resistance | ind. Lin. |
|------|---------|-----|-----|-------|------|--------------------|----------------|
| 00 | MBX 50 | 105 | 50 | 62 | 3,15 | 2,5kOhm $\pm 30\%$ | $\leq \pm 1\%$ |
| 00 | MBX 100 | 150 | 100 | 105,5 | 3,15 | 5kOhm $\pm 30\%$ | $\leq \pm 1\%$ |
| 00 | MBX 150 | 200 | 150 | 154,5 | 3,15 | 7,5kOhm $\pm 30\%$ | $\leq \pm 1\%$ |
| 00 | MBX 200 | 250 | 200 | 205 | 3,15 | 10kOhm $\pm 30\%$ | $\leq \pm 1\%$ |

