

# Linear motor data LDT-UL-0600 for not Schunk supported controllers

Type of motor: MGT-EL-0600

Date of creation: 10.04.2018

| Description                       | Symbol           | Unit  | Value |
|-----------------------------------|------------------|-------|-------|
| <b>Daten</b>                      |                  |       |       |
| Nominal motor force               | $F_{nenn}$       | N     | 500   |
| Motor peak force                  | $F_{max.}$       | N     | 1500  |
| Motor idle current (eff.)         | $I_{nenn}$       | A eff | 6,1   |
| Motor peak current (eff.)         | $I_{max.}$       | A eff | 28    |
| Max. velocity                     | $v_{max.}$       | m/s   | 4     |
| Power loss                        | P                | W     | 15,5  |
| Force constant                    | $k_{Force}$      | N/A   | 82    |
| Motor constant                    | $k_{Motor}$      | N/√W  | 127   |
| BEMF (velocity 1 m/s)             | $k_{EMK}$        | Vs/m  | 165   |
| Thermal time constant             | $k_{therm.}$     | s     | 1740  |
| Resistance                        | R phase / phase  | Ohm   | 2,20  |
| Inductance                        | Lu-v, Lv-w, Lw-u | mH    | 15,50 |
| Number of pole pairs per distance |                  | mm    | 28,1  |
| Mass primary part                 | $m_{Prim.}$      | kg    | 11,3  |
| Mass Rail                         | $m_{Sek.}$       | kg/m  | 28,1  |
| Max. intermediate circuit voltage | $U_{DC}$         | V     | 900   |
| Max. coil temperature             | $T_{max.}$       | °C    | 90    |
| Type of temperature sensor        |                  |       | KTY   |

## Control parameters

|                                     |    |            |       |
|-------------------------------------|----|------------|-------|
| Current loop propotional gain       |    | V/A        | 9     |
| Current loop integral action time   |    | ms         | 6,3   |
| Position loop KV-Factor             | kv | 1000/min   | 1     |
| Velocity loop smoothing time const. |    | us         | 900   |
| Velocity loop propotional gain      | kp | N/(mm/min) | 0,031 |
| Velocity loop integral action time  | TN | ms         | 5     |

## Encoder Feedback

| Type                 | magnetic | magnetic absolut    | optical                  | magnetic absolut |
|----------------------|----------|---------------------|--------------------------|------------------|
| Sensor designation   | LE100    | TTK 70              | LIA 22                   | MSA111C          |
| Tape measure         | MB100    | MBA 111             | SINGLEFLEX<br>DOUBLEFLEX | MBA 111          |
| Manufactur           | SIKO     | Sick Stegmann       | NUMERIK                  | Siko             |
| Grating period       | 1000 µm  | 1000 µm             | 20 µm                    | 1000 µm          |
| Supply voltage       | 5 V      | 7V- 12V             | 5 V                      | 4,5V - 30V       |
| Waveform             | sin/cos  | sin/cos / Hiperface | sin/cos                  | sin/cos / SSI    |
| Reference mark       | periodic | --                  | periodic                 | --               |
| Reference mark pitch | 20 mm    | --                  | 50 mm                    | --               |
| Signal amplitude     | 1 Vss    | 1 Vss               | 1 Vss                    | 1 Vss            |
| Feedback revolution  | 1 mm     | 1 mm                | 0,02 mm                  | 1 mm             |

**Motor connection**

| Connector                        | Anschluss       | Stecker |
|----------------------------------|-----------------|---------|
| Interconnectron<br>Typ: LEAB08AN | U               | thick 1 |
|                                  | V               | thick 4 |
|                                  | W               | thick 3 |
|                                  | GND             | thick 2 |
| 3*temperature switch with KTY    | Switch 105 °C ; | thin C  |
|                                  | KTY 84-130      | thin D  |

**Thermal motor protection**

|                | Sensor 1   | Sensor 2        |
|----------------|------------|-----------------|
| Type           | NTC        | Switch          |
| Type           | KTY 84-130 | normally closed |
| Characteristic | Datasheet  | 105 °C          |

**Measurement system**

|                  | LE100     | TTK 70    | LIA 22    | MSA111C   |
|------------------|-----------|-----------|-----------|-----------|
|                  | Sub D pin | Sub D pin | Sub D pin | Sub D pin |
| Signal           | Pin       | Pin       | Pin       | Pin       |
| 0V Sense         | 15        |           |           |           |
| Ref - / EncData- | 10        | 8         | 4         | 3         |
| Ref + / EncData+ | 9         | 7         | 12        | 2         |
| /B (COS-)        | 6         | 6         | 6         | 8         |
| B(COS+)          | 5         | 5         | 14        | 9         |
| A(SIN+)          | 2         | 2         | 13        | 7         |
| /A(SIN-)         | 3         | 3         | 5         | 6         |
| N.C.             |           |           |           |           |
| GND (0V)         | 4         | 4         | 9         | 12        |
| N.C.             |           |           |           |           |
| Ucc              | 12        | 11        | 8         | 5         |
| N.C.             |           |           |           |           |
| GND (Schirm)     |           |           |           |           |
| N.C.             |           |           |           |           |

