

# Datasheet for linear direct drive SLD 11 and servo drive Indradrive Cs

Type of motor

SLD 11

Type of axis

SLD 11

Date of creation:

16.01.2026



| Description | Symbol | Unit |  | comment |
|-------------|--------|------|--|---------|
|-------------|--------|------|--|---------|

## Electrical data

|          |                                   |                             |                 |        |                                                |
|----------|-----------------------------------|-----------------------------|-----------------|--------|------------------------------------------------|
| S-0-0141 | Type of axis                      |                             |                 | SLD 11 |                                                |
| P-0-4014 | Type of motor                     | Linear synchron motor       |                 | 0200h  |                                                |
| P-0-0512 | Temperature sensor                |                             |                 | 3      |                                                |
|          | PWM frequency                     |                             | kHz             | 4      |                                                |
| S-0-0111 | Motor idle current (rms)          | $I_d$                       | A               | 2,2    | rms                                            |
|          | Nominal motor force               | $F_{nenn}$                  | N               | 165    | with temperature increase of 75 K inside motor |
|          | Power loss                        | $P_{const}$                 | W               | 72,8   | with temperature increase of 75 K inside motor |
| S-0-0109 | Motor peak current (rms)          | $I_{max}$                   | A               | 6      | rms                                            |
|          | Motor peak force                  | $F_{max}$                   | N               | 300    |                                                |
| S-0-0092 | Bipolar force limit value         |                             | %               | 272,7  |                                                |
| P-0-0109 | Force peak limit                  |                             | %               | 272,7  |                                                |
| P-0-0051 | Force constant                    | $k_f$                       | N/A             | 74     |                                                |
|          | Motor constant                    | $K_m$                       | N/√W            | 19,3   |                                                |
|          | BEMF (velocity 1 m/s)             | $K_e$ (Phase-Phase)         | V <sub>SS</sub> | 150    |                                                |
|          | Thermal resistance                | $R_{th}$                    | K/W             | 1,03   | temperature increase (75 K) / $P_{const}$      |
| S-0-0113 | Maximum motor speed               | $v_{max}$                   | mm/min          | 300000 |                                                |
|          | Max. frequency                    | $f_{max}$                   | Hz              | 178,6  |                                                |
| P-0-0018 | Number of pole pairs per distance | PWT (Npol-Npol)             | mm              | 28     |                                                |
|          | Type of circuit                   |                             |                 | Y      |                                                |
|          | Max. intermediate circuit voltage | $U_{DC}$                    | V               | 900    |                                                |
|          | Inductance                        | $L_{u-v}, L_{v-w}, L_{w-u}$ | mH              | 80,00  |                                                |
| P-0-4016 | Motor series inductance           |                             | mH              | 40,00  |                                                |
| P-0-4017 | Motor shunt inductance            |                             | mH              | 40,00  |                                                |
| P-0-4048 | Winding resistance by 25°C        | $R_{u-v}, R_{v-w}, R_{w-u}$ | Ohm             | 7,20   |                                                |
|          | Winding resistance by 100°C       | $R_{u-v}, R_{v-w}, R_{w-u}$ | Ohm             | 9,3    |                                                |
|          | Electrical time constant          |                             | ms              | 11,1   |                                                |
|          | Type of temperature sensor        |                             |                 | PT1000 |                                                |
| S-0-0201 | Motor warning temperature         |                             | °C              | 100    |                                                |
| S-0-0204 | Motor shutdown temperature        |                             | °C              | 105    |                                                |
|          | Insulation class                  |                             |                 | F      |                                                |

## Mechanical Data

|  |                         |  |      |      |                     |
|--|-------------------------|--|------|------|---------------------|
|  | Total mass primary part |  | kg   | 3,75 |                     |
|  | Total mass rail         |  | kg/m | 13   | without attachments |

## Control parameters without mass moment of inertia

|          |                                     |    |     |      |  |
|----------|-------------------------------------|----|-----|------|--|
| S-0-0106 | Current loop propotional gain       |    | V/A | 45,4 |  |
| S-0-0107 | Current loop integral action time   |    | ms  | 4,7  |  |
| S-0-0104 | Position loop KV-Factor             | kv |     | 1    |  |
| P-0-0004 | Velocity loop smoothing time const. |    |     | 900  |  |
| S-0-0100 | Velocity loop propotional gain      | kp |     | 0,03 |  |
| S-0-0101 | Velocity loop integral action time  | TN |     | 5    |  |

## Parameter of position

|          |                          |  |    |        |  |
|----------|--------------------------|--|----|--------|--|
| S-0-0277 | Position feedback 1 type |  |    | 1001 b |  |
| S-0-0278 | Maximum travel range     |  | mm | 5800   |  |

## Encoder Feedback

|                         |                       |                 |                  |                     |            |                  |
|-------------------------|-----------------------|-----------------|------------------|---------------------|------------|------------------|
|                         | Measurement principle |                 | magnetic         | magnetic absolut    | optical    | magnetic absolut |
|                         | Type of sensor        |                 | LE100            | TTK 70              | LIC 411    | MSA111C-DQ       |
|                         | Tape measure          |                 | MB100            | MBA 111             | LIC4005    | MBA 111          |
|                         | Manufacturer          |                 | SIKO             | Sick Stegmann       | Heidenhain | SIKO             |
|                         | Grating period        | μm              | 1000μm           | 1000μm              | --         | 1000μm           |
|                         | Supply voltage        | V               | 5V               | 7V - 12V            | 3,6V - 14V | 10V - 30V        |
|                         | Waveform              |                 | sin/cos          | sin/cos / Hiperface | EnDat 2.2  | DRIVE-CLiQ       |
|                         | Reference mark        |                 | periodic         | --                  | --         | --               |
|                         | Reference mark pitch  | mm              | 20 mm            | --                  | --         | --               |
|                         | Signal amplitude      | V <sub>ss</sub> | 1V <sub>ss</sub> | 1V <sub>ss</sub>    | --         | --               |
| S-0-0116 / S-0-0602.1.3 | Feedback resolution   | mm              | 1mm              | 1mm                 | 10 nm      | 1 μm             |

**Motor connection**

| Connector                 | Connector | Contact |
|---------------------------|-----------|---------|
| TE connectivity           | U         | thick 1 |
| Typ: BEWC110MR11000207000 | V         | thick 4 |
|                           | W         | thick 3 |
|                           | GND       | thick 2 |
|                           | PT1000    | thin C  |
|                           |           | thin D  |

**Thermal motor protection**

|                |           |  |
|----------------|-----------|--|
|                | Sensor1   |  |
|                |           |  |
| Type           | PT1000    |  |
| Characteristic | Datasheet |  |

**Motor feedback**

| Feedback | Signal           | LE100      | TTK 70     | LIC 411     | MSA111C-DQ  |
|----------|------------------|------------|------------|-------------|-------------|
|          |                  | Sub D plug | Sub D plug | Stecker [6] | Stecker [5] |
|          | 0V Sense         | 15         |            |             |             |
|          | Ref - / EncData- | 10         | 8          | 4           |             |
|          | Ref + / EncData+ | 9          | 7          | 3           |             |
|          | /B (COS-)        | 6          | 6          |             | 4           |
|          | B(COS+)          | 5          | 5          |             | 5           |
|          | A(SIN+)          | 2          | 2          |             | 8           |
|          | /A(SIN-)         | 3          | 3          |             | 7           |
|          | Clock+           |            |            | 7           |             |
|          | GND (0V)         | 4          | 4          | 5           | 3           |
|          | Clock-           |            |            | 6           |             |
|          | Ucc              | 12         | 11         | 8           | 1           |
|          | N.C.             |            |            |             | 2           |
|          | GND (Schirm)     |            |            |             |             |
|          | N.C.             |            |            |             | 10          |