

Datasheet for torque direct drive ERD12 and servo drive Indradrive Cs
Type of motor: ERD12



Date of creation: 23.10.2018

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

Electrical data

| | | | | |
|----------|-----------------------------------|-----------------------------|-------|-------|
| S-0-0141 | Type of axis | | | |
| P-0-4014 | Type of motor | Torque motor | | 0200h |
| P-0-0512 | Temperature sensor | | | 3 |
| | PWM frequency | | kHz | 4 |
| S-0-0111 | Motor idle current (eff.) | I_d | A | 1,1 |
| | Nominal motor torque | F_{nenn} | Nm | 1,2 |
| | Power loss | P_{dauer} | W | 18,4 |
| S-0-0109 | Motor peak current (eff.) | I_{max} | A | 3,27 |
| | Motor peak torque | F_{max} | Nm | 3,6 |
| S-0-0092 | Bipolar torque limit value | auf I_d bezogen | % | 297,3 |
| P-0-0109 | torque peak limit | auf I_d bezogen | % | 297,3 |
| P-0-0051 | Torque/Force constant | k_t | Nm/A | 1,1 |
| | Motor constant | K_m | Nm/√W | 0,3 |
| | BEMF (speed 600 U/min) | K_g (Phase-Phase) | V | 116 |
| | Thermal resistance | R_{th} | K/W | 3,53 |
| S-0-0113 | max. motor speed | U_{max} | U/min | 600 |
| P-0-0018 | Number of pol pairs | PPZ | | 7 |
| | Type of circuit | | | Y |
| | Max. intermediate circuit voltage | U_{nenn} | V | 900 |
| | Inductance | $L_{U-V}, L_{V-W}, L_{W-U}$ | mH | 13,8 |
| P-0-4016 | Motor series inductance | | mH | 6,9 |
| P-0-4017 | Motor shunt inductance | | mH | 6,9 |
| P-0-4048 | Winding resistance by 25 °C | $R_{U-V}, R_{V-W}, R_{W-U}$ | Ohm | 13,7 |
| | Winding resistance by 90 °C | $R_{U-V}, R_{V-W}, R_{W-U}$ | Ohm | 17,2 |
| | Electrical time constant | | ms | 1 |
| | Type of temperature sensor | | KTY | |
| S-0-0201 | Motor warning temperature | | °C | 85 |
| S-0-0204 | Motor shutdown temperature | | °C | 90 |
| | Insulation class | | F | |

Mechanical data

| | | | |
|--|---------------|----|-----|
| | Mass of motor | kg | 1,9 |
|--|---------------|----|-----|

Control parameters without mass moment of inertia

| | | | | |
|----------|-------------------------------------|----|-----|------|
| S-0-0106 | Current loop propotional gain | | V/A | 13 |
| S-0-0107 | Current loop integral action time | | ms | 0,5 |
| S-0-0104 | Position loop KV-Factor | kv | | 1 |
| P-0-0004 | Velocity loop smoothing time const. | | | 500 |
| S-0-0100 | Velocity loop propotional gain | kp | | 0,03 |
| S-0-0101 | Velocity loop integral action time | TN | | 10 |

Parameter of position

| | | | |
|----------|--------------------------|----|--------|
| S-0-0277 | Position feedback 1 type | | 1001 b |
| S-0-0278 | Maximum travel range | mm | 4000 |

Encoder Feedback

| | | | | |
|---------------------|---------|---------------|---------------------|---------------------|
| Motor | ERS | MRDS | ERD | ERI |
| Sensor designation | LE100 | Encoder Kit R | SKM36 | SKS90 |
| Manufactor | SIKO | Numerik | Sick | Sick |
| Supply voltage | 5 V | 5V | 7-12V | 7-12V |
| Waveform | sin/cos | sin/cos | sin/cos / Hiperface | sin/cos / Hiperface |
| Reference mark | 1 | 1 | -- | -- |
| Signal amplitude | 1 Vss | 1 Vss | 1 Vss | 1Vss |
| Feedback revolution | 160 | 2048 | 128 | 64 |

Motor connection

| Connector | Connector | Contact |
|-----------------|-----------|---------|
| Interconnectron | U | thick 1 |
| Typ: LEAB08AN | V | thick 4 |
| | W | thick 3 |
| | Erde | thick 2 |
| PTC | PTC | thin C |
| | | thin D |

Encoder Feedback

| | ERS | MRDS | ERD | ERI |
|------------------|-----------|-----------|-----------|-----------|
| | Sub D pin | Sub D pin | Sub D pin | Sub D pin |
| Signal | Pin | Pin | Pin | Pin |
| 0V Sense | | | | |
| Ref - / EncData- | 6 | 6 | 6 | 6 |
| Ref + / EncData+ | 5 | 5 | 5 | 5 |
| /B (COS-) | 4 | 4 | 3 | 3 |
| B(COS+) | 3 | 3 | 4 | 4 |
| A(SIN+) | 1 | 1 | 2 | 2 |
| /A(SIN-) | 2 | 2 | 1 | 1 |
| N.C. | | | | |
| GND (0V) | 7 | 7 | 7 | 7 |
| N.C. | | | | |
| Ucc | 8 | 8 | 8 | 8 |
| N.C. | | | | |
| GND (Schirm) | | | | |
| N.C. | | | | |
| ID | direct | direct | 357798 | |