

# Torque motor data for ERD04 for not Schunk supported controller

Type of motor: ERD04

Date of creation: 10.04.2018

Description	Symbol	Unit	Value
<b>Data</b>			
Nominal motor torque	$F_{nenn}$ [1]	Nm	0,4
Motor peak torque	$F_{max.}$ [1]	Nm	1,2
Motor idle current (eff.)	$I_{nenn}$ [1,2]	A eff	0,4
Motor peak current (eff.)	$I_{max.}$ [1,2]	A eff	1,29
max. motor speed	$n_{max.}$	U/min	600
Power loss	$P$ [1]	W	14,6
Torque / Force constant	$k_{Kraft}$	Nm/A	0,9
Motor constant	$k_{Motor}$	Nm/√W	0,1
BEMF (speed 600 U/min)	$k_{EMK}$	Vss	116
Thermal time constant	$k_{therm.}$	s	1200
Resistance	$R_{(Phase\ Phase)}$	Ohm	70
Inductance	$L_{(Phase\ Phase)}$	mH	53,8
Number of pol pairs			7
Mass of motor	$m$	kg	1,2
Max. intermediate circuit voltage	$U_{max.}$ [2]	V	900
Max. coil temperature	$T_{max.}$	°C	90
Type of temperature sensor			PTC

## Control parameters

Current loop propotional gain		V/A	40
Current loop integral action time		ms	0,5
Position loop KV-Factor	kv	1000/min	1
Velocity loop smoothing time const.		us	500
Velocity loop propotional gain	kp	N/(mm/min)	0,03
Velocity loop integral action time	TN	ms	10

## Encoder Feedback

Motor	ERS	MRDS	ERD	ERI
Sensor designation	LE100	Encoder Kit R	SKM36	SKS90
Manufacturer	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 Typ: LEAB08AN	U	thick 1
	V	thick 4
	W	thick 3
	GND	thick 2
PTC		thin C
	PTC	thin D

**Motor 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.				

