

Datasheet for torque direct drive ERS170 and servo drive Indradrive  
Type of motor: ERS170



Date of creation: 11.04.2018

Description	Symbol	Unit	comment
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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	1,6
	Nominal motor torque	$F_{nenn}$	Nm	5
	Power loss	$P_{dauer}$	W	84,9
S-0-0109	Motor peak current (eff.)	$I_{max}$	A	5,7
	Motor peak torque	$F_{max}$	Nm	17
S-0-0092	Bipolar force limit value	auf $I_d$ bezogen	%	356,3
P-0-0109	Force peak limit	auf $I_d$ bezogen	%	356,3
P-0-0051	Torque/Force constant	$k_t$	Nm/A	3,1
	Motor constant	$K_m$	Nm/√W	0,5
	Thermal resistance	$R_{th}$	K/W	0,77
S-0-0113	max. motor speed	$U_{max}$		1600
	Max. frequency	$f_{max}$	Hz	1,8
P-0-0018	Number of pol pairs	PPZ		15
	Type of circuit			Y
	Max. intermediate circuit voltage	$U_{nenn}$	V	560
	Inductance	$L_{U-V}, L_{V-W}, L_{W-U}$	mH	24,9
P-0-4016	Motor series inductance		mH	12,45
P-0-4017	Motor shunt inductance		mH	12,45
P-0-4048	Winding resistance by 25 °C	$R_{U-V}, R_{V-W}, R_{W-U}$	Ohm	17,1
	Winding resistance by 90 °C	$R_{U-V}, R_{V-W}, R_{W-U}$	Ohm	21,4
	Electrical time constant		ms	1,5
	Type of temperature sensor		KTY	
S-0-0201	Motor warning temperature		°C	90
S-0-0204	Motor shutdown temperature		°C	95
	Insulation class		F	

Mechanical data

	Mass of motor		kg	4,7
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Control parameters without mass moment of inertia

S-0-0106	Current loop propotional gain		V/A	11
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.			900
S-0-0100	Velocity loop propotional gain	kp		0,5
S-0-0101	Velocity loop integral action time	TN		16

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	338 055	