

Datasheet for linear direct drive LDN-ES-0100 and servo drive Indradrive
Type of motor MGN-ES-0100
Type of axis LDN-ES-0100
Date of creation: 10.04.2018



Description	Symbol	Unit		comment
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Electrical data

S-0-0141	Type of axis				
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 (eff.)	I_d	A	2,1	
	Nominal motor force	F_{nom}	N	120	with temperature increase of 65 K inside motor
	Power loss	P_{const}	W	61,3	with temperature increase of 65 K inside motor
S-0-0109	Motor peak current (eff.)	I_{max}	A	7,5	
	Motor peak force	F_{max}	N	250	
S-0-0092	Bipolar force limit value		%	357,1	
P-0-0109	Force peak limit		%	357,1	
P-0-0051	Force constant	k_t	N/A	58	
	Motor constant	K_m	N/V	15,3	
	BEMF (velocity 1 m/s)	K_e (Phase-Phase)	V/SS	110	
	Thermal resistance	R_{th}	K/W	1,06	temperature increase (65 K) / P_{const}
S-0-0113	Maximum motor speed	v_{max}	mm/min	240000	
	Max. frequency	f_{max}	Hz	142,3	
P-0-0018	Number of pole pairs per distance	PWT (Npol-Npol)	mm	28,1	
	Poles			7	
	Type of circuit			Y	
	Max. intermediate circuit voltage	U_{DC}	V	900	
	Inductance	$L_{U-V}, L_{V-W}, L_{W-U}$	mH	75,00	
P-0-4016	Motor series inductance		mH	37,50	
P-0-4017	Motor shunt inductance		mH	37,50	
P-0-4048	Winding resistance by 25 °C	$R_{U-V}, R_{V-W}, R_{W-U}$	Ohm	7,60	
	Winding resistance by 90 °C	$R_{U-V}, R_{V-W}, R_{W-U}$	Ohm	9,5	
	Electrical time constant		ms	9,9	
	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 primary part without carriage	kg	1,6	
	Mass carriage	kg	1,4	
	Total mass primary part	kg	3	
	Total mass rail	kg/m	6,2	without attachments

Control parameters without mass moment of inertia

S-0-0106	Current loop proportional gain		V/A	30
S-0-0107	Current loop integral action time		ms	8
S-0-0104	Position loop KV-Factor	kv		1
P-0-0004	Velocity loop smoothing time const.			900
S-0-0100	Velocity loop proportional gain	kp		0,031
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	4000

Encoder Feedback

	Measurement principle		magnetic	absolut magnetic	optical	
	Type of sensor		LE100	TTK 70	LIA 22	
					DOUBLEFLEX	
	Tape measure		MB100	MBA 111	SINGLEFLEX	
	Manufacturer		SIKO	Sick Stegmann	NUMERIK	
	Grating period	μm	1000	1000	20	
	Supply voltage	V	5	7-12	5	
	Waveform		sin/cos	sin/cos / Hiperface	sin/cos	
	Reference mark		periodic	--	periodic	
	Reference mark pitch	mm	20	--	50	
	Signal amplitude	Vss	1	1	1	
S-0-0116 / S-0-0602.1.3	Feedback resolution	mm	1,00	1,00	0,02	

Motor connection

Connector	Connector	Contact
Tyco Electronic	U	thick 1
Typ: 923	V	thick 4
	W	thick 3
	GND	thick 2
Series connection of 3* temperature switch and KTY	Switch 105 °C ; KTY 84-130	thin C thin D

Thermal motor protection

	Sensor1	Sensor2
Type	NTC	Switch
Type	KTY 84-130	normally closed
Characteristic	Datasheet	105 °C

Motor feedback

Feedback	Signal	LE100 / LS100 Sub D plug	TTK 70 Sub D plug	LIA 22 Sub D plug	
	5V Sense	1 (nur bei LE)			
	0V Sense	2 (nur bei LE)			
	Ref - / EncData-	3	8	4	
	Ref + / EncData+	4	7	12	
	/B (COS-)	5	6	6	
	B(COS+)	6	5	14	
	A(SIN+)	7	2	13	
	/A(SIN-)	8	3	5	
	N.C.				
	GND (0V)	10	4	9	
	N.C.				
	Ucc	12	11	8	
	N.C.				
	GND (Schirm)				
	N.C.				
Adapter cable	ID	direct	direct	338 055	