

Datasheet for linear direct drive ELB70 H50 and servo drive Indradrive Cs  
Type of motor MGB-ES-0030  
Type of axis ELB70 H50  
Date of creation: 03.04.2018



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	2,6	
	Nominal motor force	$F_{\text{nom}}$	N	40	with temperature increase of 65 K inside motor
	Power loss	$P_{\text{const}}$	W	33,1	with temperature increase of 65 K inside motor
S-0-0109	Motor peak current (eff.)	$I_{\text{max}}$	A	10	
	Motor peak force	$F_{\text{max}}$	N	150	
S-0-0092	Bipolar force limit value		%	384,6	
P-0-0109	Force peak limit		%	384,6	
P-0-0051	Force constant	$k_t$	N/A	15,4	
	Motor constant	$K_m$	N/V	7	
	BEMF (velocity 1 m/s)	$K_e$ (Phase-Phase)	V/SS	30	
	Thermal resistance	$R_{th}$	K/W	1,96	temperature increase (65 K) / $P_{\text{const}}$
S-0-0113	Maximum motor speed	$v_{\text{max}}$	mm/min	240000	
	Max. frequency	$f_{\text{max}}$	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	10,00	
P-0-4016	Motor series inductance		mH	5,00	
P-0-4017	Motor shunt inductance		mH	5,00	
P-0-4048	Winding resistance by 25 °C	$R_{U-V}, R_{V-W}, R_{W-U}$	Ohm	2,60	
	Winding resistance by 90 °C	$R_{U-V}, R_{V-W}, R_{W-U}$	Ohm	3,3	
	Electrical time constant		ms	3,8	
	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	1,3	
	Mass carriage		kg	0	
	Total mass primary part		kg	1,25	
	Total mass rail		kg/m	0,8	without attachments

#### Control parameters without mass moment of inertia

S-0-0106	Current loop proportional gain		V/A	5,7	
S-0-0107	Current loop integral action time		ms	1,6	
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	TTK 70	LIA 22	
		Sub D plug	Sub D plug	Sub D plug	
	0V Sense	15			
	Ref - / EncData-	10	8	4	
	Ref + / EncData+	9	7	12	
	/B (COS-)	6	6	6	
	B(COS+)	5	5	14	
	A(SIN+)	2	2	13	
	/A(SIN-)	3	3	5	
	N.C.				
	GND (0V)	4	4	9	
	N.C.				
	Ucc	12	11	8	
	N.C.				
	GND (Schirm)				
	N.C.				
Adapter cable	ID	direct	direct	357798	