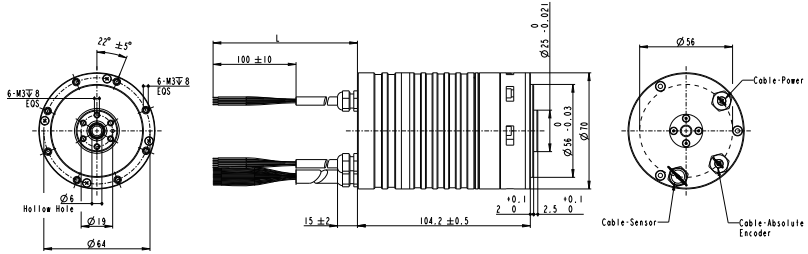


# Robot Joint 45 $\varnothing 70$ mm, 70 Watt

Modular Integrated Robotic Joint

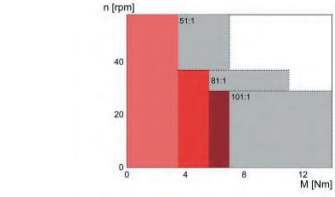


Gear-motor data								
1	Gear Ratio	X:1	51	51	81	81	101	101
2	Nominal voltage	V	24	48	24	48	24	48
3	No load speed	rpm	68	49	42	30	34	24
4	Nominal speed	rpm	58	39	37	24	29	19
5	Nominal current	A	3.5	1.4	3.5	1.4	3.5	1.4
6	Maximum current	A	7	2.5	7	2.5	7	2.5
7	Nominal torque	Nm	3.5	3	5.6	5	7	6.5
8	Maximum torque	Nm	7	5	11	10	14	13
9	Torque constant	Nm/A	1.1	2.2	1.7	3.6	2.2	4.6
10	Thermal time constant winding	s	20	6	20	6	20	6

Encoder specifications				Optional			
<b>Incremental encoder</b>				<b>Brake</b>			
12	Resolution, counts per turn	CPT	500	Supply voltage	VDC	24±10%	
13	Number of channels		3	Duty cycle	%	100	
14	Maximum frequency	kHz	100	Resistance	$\Omega$	35	
15	Supply voltage	VDC	5±10%	Reaction time (coupling)	ms	50	
16	Typical supply current	mA	55	Reaction time (opening)	ms	20	
17	Output signal		RS422	<b>Torque sensor</b>			
18	<b>Absolute encoder</b>			Torque range	Nm	-20...+20	
19	Steps per turn		524288	Instantaneous torque	Nm	60	
20	Resolution (bit single turn)	bit	19	Power supply	VDC	5	
21	Signal protocol		SSI	Output voltage	VDC	2.5±2	
22	Data encoding		Binary	Bridge resistance nominal	$\Omega$	350	
23	Clock frequency	MHz	0.5...2	Sensitivity	V/Nm	0,105	
24	Timeout (monoflop time)	$\mu$ s	20	Axial force for crosstalk	N	100	
25	Encoder supply voltage	VDC	5±10%	Radial force for crosstalk	N	100	
26	Typical supply current	mA	120	<b>Controller</b>			
27	Output signal		RS422	Operating voltage	VDC	12...60	
28	Setup time after power on	ms	60	Continuous output current	A	8	
29	Absolute accuracy	°	±0,06	Maximum output current	A	24	
30	Repeated accuracy	°	±0,008	<b>Interface</b>			
				CANopen or EtherCAT			

Other specifications				Cable			
31	Hollow shaft	mm	6	Cable length (L)			
32	Weight	kg	1,25	mm	500, 1500, 2000		
33	Cable length (L)	mm	1000				
34	Maximum radial load (dynamic)	N	490				
35	Maximum axial load (dynamic)	N	490				
36	Storage temperature	°C	-10...70				
37	Operating temperature	°C	-10...40				
38	Non-condensing humidity	%	0...75				
39	Number of Pole pairs		8				

Connection				Operating Range			
<b>Cable-Power</b>				n [rpm]			
40	U	Motor winding 1	AWG20	Red	51:1		
41	V	Motor winding 2	AWG20	Black	81:1		
42	W	Motor winding 3	AWG20	White	101:1		
43	Brake+	Brake power supply+	AWG24	Brown			
44	Brake-	Brake power supply-	AWG24	Blue			
<b>Cable-Sensor</b>				M [Nm]			
45	V_HALL	Hall power supply+	AWG28	Red/White			
46	GND_HALL	Hall sensor ground	AWG28	Black/White			
47	H1	Hall sensor 1	AWG28	Yellow			
48	H2	Hall sensor 2	AWG28	Brown			
49	H3	Hall sensor 3	AWG28	Grey			
50	V_ENC	Encoder power supply	AWG28	Red			
51	GND_ENC	Encoder ground	AWG28	Black			
52	CH A	Channel A	AWG28	Green			
53	CH A/	Channel A/	AWG28	Green/Black			
54	CH B	Channel B	AWG28	Blue			
55	CH B/	Channel B/	AWG28	Blue/Black			
56	CH I	Channel I	AWG28	Orange			
57	CH I/	Channel I/	AWG28	Orange/Black			



Cable-Magnetic Encoder (Absolute SSI encoder)			
V_ABS	SSI Encoder power supply	AWG28	Red
GND	SSI encoder ground	AWG28	Black
CL+	SSI Clock+	AWG28	Green
CL-	SSI Clock-	AWG28	Yellow
DA+	SSI Data+	AWG28	Brown
DA-	SSI Data-	AWG28	Orange