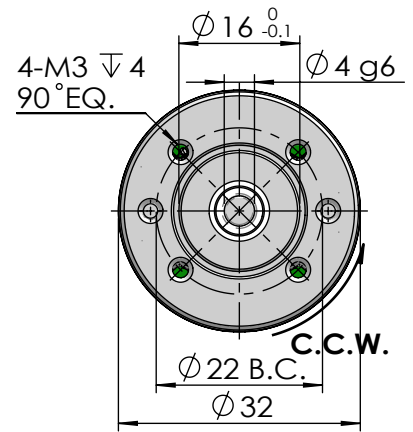
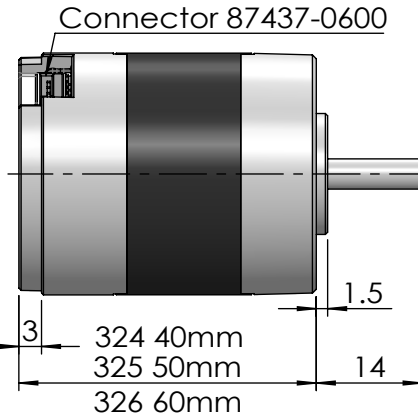
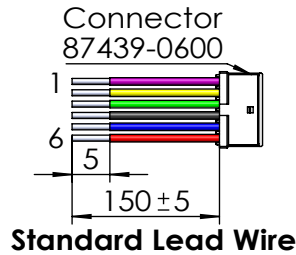
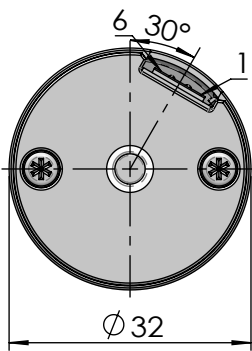


FR32

B-Class Insulation / IP5X Protection

Brushless Motor Internal Full-Function Driver



FR324 Motor Data									10W		Weight			Inertia		Cogging		
											110 g			8.9 g-cm ²		8 g-cm		
Item	Volt	No Load		Rated at Max. Eff.					Stall		Pmax	Rt	La	Kt	Ke	Ks	Tm	Te
Unit	V	rpm	mA	rpm	mA	g-Cm	W	%	g-Cm	mA	W	Ω	mH	Kg-cm/A	V/krpm	rpm/V	mS	mS
-119	12	1900	70	1430	216	99	1.5	56.08	400	660	2.0	18	8.7	0.678	6.96	144	3.5	0.48
-140	12	4000	150	3229	642	162	5.4	69.75	840	2700	8.6	4.1	2.0	0.329	3.38	296	3	0.49
-160	12	6040	370	4766	1418	232	11.4	66.73	1100	5340	17.1	1.9	0.9	0.221	2.27	440	3.5	0.45
-196	12	9600	450	7952	2261	230	18.8	69.24	1340	11000	33.0	1.0	0.4	0.127	1.30	767	5.5	0.39
-225	24	2550	60	1888	179	135	2.6	60.79	520	520	3.4	46	19.0	1.130	11.60	86	3.2	0.41
-238	24	3730	130	2824	414	209	6.1	60.95	860	1300	8.2	18	8.7	0.735	7.55	133	3.0	0.48
-265	24	6500	160	5321	757	254	13.9	76.41	1400	3450	23.4	6.8	3.1	0.426	4.37	229	3.3	0.46
-294	24	9400	250	7876	1360	308	24.9	76.31	1900	7100	3.3	3.3	1.4	0.277	2.85	351	3.8	0.42
FR325 Motor Data									15W		Weight			Inertia		Cogging		
											150 g			13.4 g-cm ²		10 g-cm		
Item	Volt	No Load		Rated at Max. Eff.					Stall		Pmax	Rt	La	Kt	Ke	Ks	Tm	Te
Unit	V	rpm	mA	rpm	mA	g-Cm	W	%	g-Cm	mA	W	Ω	mH	Kg-cm/A	V/krpm	rpm/V	mS	mS
-122	12	2160	75	1725	306	131	2.3	63.24	650	1220	3.6	9.7	4.8	0.568	5.83	172	2.7	0.49
-139	12	3900	140	3286	767	189	6.4	69.31	1200	4120	12.0	2.9	1.2	0.302	3.09	323	3	0.41
-162	12	6240	190	5348	1192	193	10.6	74.10	1350	7200	21.6	1.4	0.59	0.193	1.98	506	3.4	0.42
-225	24	2560	80	1988	285	201	4.1	59.91	900	1000	5.9	25	13.7	0.978	10.04	100	2.3	0.55
-236	24	3650	100	2935	441	235	7.1	66.97	1200	1840	11.2	13	6.7	0.690	7.08	141	2.5	0.51
-263	24	6260	150	5277	844	267	14.5	71.42	1700	4570	27.3	4.9	2.3	0.385	3.95	253	2.9	0.47
-282	24	8140	190	7052	1254	294	21.3	70.77	2200	8150	46.0	2.9	1.2	0.276	2.84	352	3.4	0.41
-298	24	9770	220	8541	1576	327	28.7	75.85	2600	11000	65.2	2.2	0.97	0.241	2.48	404	3.4	0.44
FR326 Motor Data									20W		Weight			Inertia		Cogging		
											190 g			17.9 g-cm ²		12 g-cm		
Item	Volt	No Load		Rated at Max. Eff.					Stall		Pmax	Rt	La	Kt	Ke	Ks	Tm	Te
Unit	V	rpm	mA	rpm	mA	g-Cm	W	%	g-Cm	mA	W	Ω	mH	Kg-cm/A	V/krpm	rpm/V	mS	mS
-123	12	2270	90	1861	427	180	3.4	67.22	1000	1960	5.8	6.1	3	0.535	5.49	182	1.9	0.49
-135	12	3500	140	2949	795	225	6.8	71.48	1430	4300	12.9	2.6	1.3	0.344	3.53	283	2.0	0.50
-157	12	5700	210	4919	1374	233	11.8	71.41	1700	8700	24.9	1.2	0.48	0.200	2.06	487	2.7	0.40
-170	12	6990	260	6102	1878	254	15.9	70.64	2000	13000	35.9	0.8	0.32	0.157	1.61	621	2.9	0.40
-226	24	2650	85	2101	337	265	5.7	70.81	1280	1300	8.7	17.8	9	1.053	10.81	92	1.4	0.51
-240	24	3950	110	3322	601	299	10.2	70.67	1880	3200	19.1	7.2	3.9	0.608	6.25	160	1.7	0.54
-260	24	6040	150	5260	1022	323	17.4	71.13	2500	6900	38.8	3.2	1.7	0.370	3.80	263	2.1	0.53
-291	24	9100	210	8077	1704	354	29.4	71.83	3150	13500	73.6	1.6	0.78	0.237	2.43	411	2.5	0.49

Pin No.	Symbol	Function	Standard condition	Coller of wire
1	PWM	Enable & speed control	20 kHz Input	Purple
2	FG	Speed signal output	2 ppr / 6 ppr(Optional)	Yellow
3	F / R	H:CCW L:CW	H:GND open L:Connector to GND	Green
4	GND	Power GND	GND	Black
5	Brake	BEMF Brake operates	Connector to GND	Blue
6	VM+	Power + for drive (Enable)	DC7~30V MAX. (Voltage speed control)	Red

Waring: Reversing the polarity will cause damage to the driver.