



Mack[®] Indy

DRIVE & MOTORS

BRUSHLESS

VERY COMPACT FULL DIGITAL SERVODRIVE
230VAC POWER & LOGIC BKUP SUPPLY,
DRIVING MOTOR RANGE UP TO 1500W

- | | |
|-----------------------------|---------------------|
| Printing Machines | Packaging Machines |
| Machine Tools | Sewing Machines |
| Wood Working Machines | Jewellery Machines |
| Battery operated Equipment | Antenna positioners |
| Upgrade for stepper systems | CNC controlled axis |
| Coding Machines | Door operators |



DRIVE SPECIFICATIONS

- Stand alone design
- In-rush and regen circuits on board
- USB access for setting and monitoring
- Speeder-One[®] software interface
- Optical isolation between power stage and signals
- 6 IN / 3 OUT opto-isolated programmable
- Operating frequency 8KHz
- Bandwidth loop: 2KHz current / 200Hz velocity
- SE Serial Encoder Feedback
- CD0 Clock and Direction Command
- Ambient temperature:
 - operating at rated data: 0 + 40°C (no derating)
 - rated and peak current derating: 40 + 55°C (2.5% / °C)
 - maximum operating: 55°C max
 - storage: -20 + 55°C
- Humidity (w/out condensation): 85% max (operating & storage)
- Altitude a.m.s.l.
 - operating at rated data: 1000 m
 - rated and peak current derating: 1000 + 2500 m (1.5% / 100m)
- Enclosure protection: IP20
- Storage duration: 1 year max²



MOTOR SPECIFICATIONS

- Sinusoidal B.E.M.F.
- 8 poles
- Permanent rare earth magnets
- Very low fluctuations of torque at minimum speed
- 3 x stall torque overload capacity
- Feedback:
 - Serial Incremental Encoder (std)
 - Comm. Incremental Encoder (opt)
 - Absolute Multiturn Encoder (opt)
- ¹ Ambient temperature:
 - operating at rated data 0 + 40°C
 - storage -20+60°C
- ¹ Ambient Humidity:
 - operating and storage 85% RH max
- Altitude (m.s.l.):
 - operating and storage 1000m
- Vibration: 5g max
- Insulation class: F
- Protection class: IP54 (IP65 as optional)

CABLE SPECIFICATIONS

- Mobile usage for chain tracks
- Outer jacket: PUR polyurethane
- Flame / oil resistance
- Trailing speed: 300m / min. max
- Acceleration: 20m / sec²
- Cycles: 5 million
- Minimum bending radius: 7xØ
- Operating temperature: -25°C / +80°C

OPTIONS

- RD0 differential analog ref. ± 10v (13 bit)
- M3 Emulated Encoder connector
- ST0 Safe Torque off safety function
- AE Absolute Multiturn Encoder feedback
- CB0 Can Bus
- EMC Line filter
- EC Commutation Encoder feedback

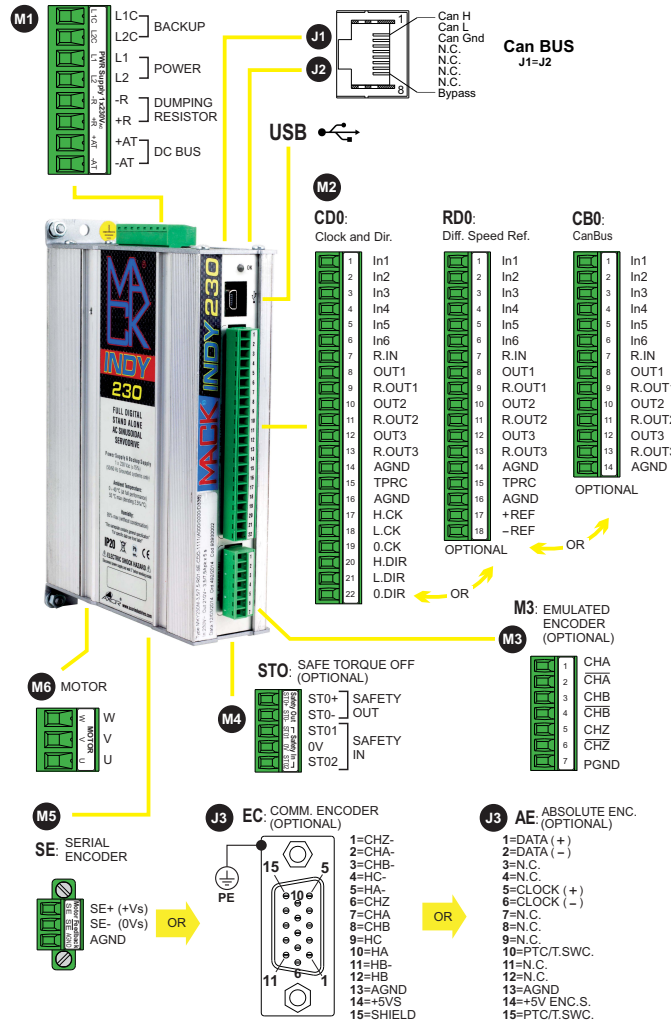
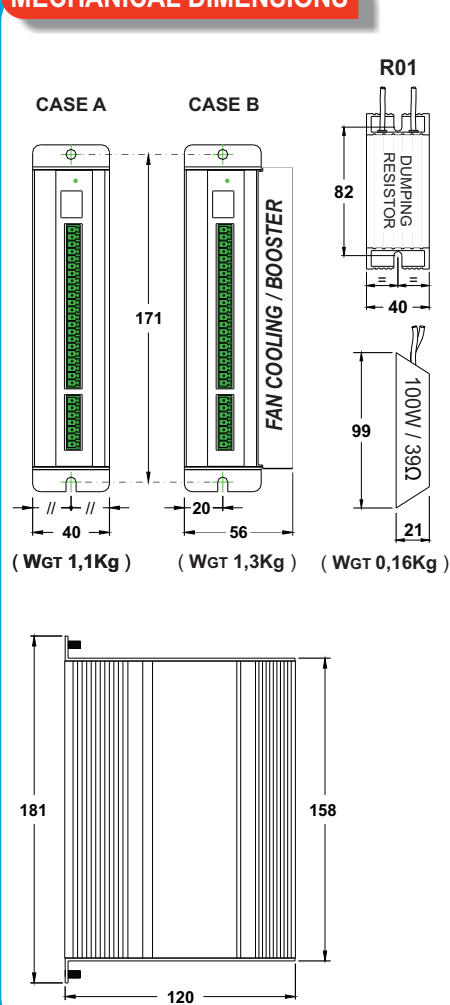
NOTE: ¹ Free from condensation. ² After one year off storage duration the electrolytic capacitors must be re-formed. Contact AXOR's for details.

DRIVE MODEL			MKYD 230			
SIZE			1.5/3	2.5/5	3.5/7.5	5/10
Rated Current	I _n (Arms)		1.5	2.5	3.5	5
Peak Current x 5"	I _{pk} (Arms)		3	5	7.5	10
Case			A	A	A	B
Power & Backup Logic Supply			1 x 230VAC (±15%) - 50/60 Hz (grounded system only)			

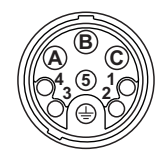
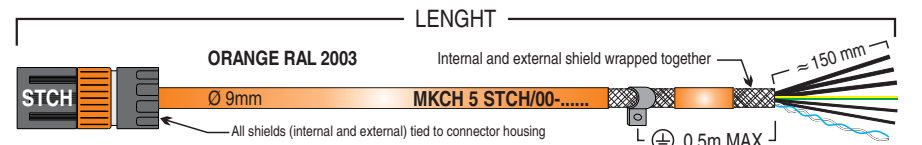
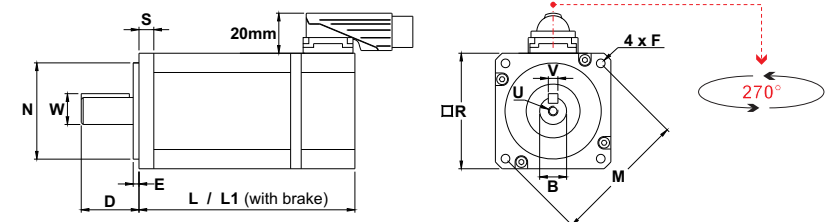
MOTOR MODEL		MKSM 40		MKSM 60		MKM 70				MKM 85		
SIZE		M	L	M	L	S	M	L	XL	S	M	L
Power	(W)	50	100	200	400	280	470	630	850	570	1050	1600
Stall Torque (Δt=100°C)	M ₀ (Nm)	0.16	0.32	0.65	1.3	0.9	1.5	2.0	2.7	1.8	3.3	5
230VAC	Stall Ac Current I ₀ (Arms)	0.6	0.85	1.45	2.5	1.1	1.5	2.0	2.5	2.0	3.3	4.7
Drive's voltage	Rated Speed N _n (Rpm)	3000		3000		3000				3000		
	Torque Constant K _r (Nm / Arms)	0.26	0.38	0.45	0.52	0.7	0.9	0.9	1.0	0.8	0.9	0.95
Rotor Inertia (with brake)	J Kgm ² · 10 ⁻⁴	0.025	0.05	0.14	0.24	0.35	0.7	1.0	1.3	1.3	2.2	3.1
		-	-	(0.15)	(0.25)	(0.395)	(0.745)	(1.045)	(1.345)	(1.422)	(2.322)	(3.222)
BRAKE	Stall Torque (24V _{DC} ±5%)	0.4Nm (0.4A _{DC})		2 Nm (0.5 A _{DC})		2 Nm (0.45 A _{DC})				4.5 Nm (0.5 A _{DC})		

Stall torque: with electronic feedback = M0 -10% - with brake = M0 -5% / M0 refer to speed 5*100 rpm, mounted motor on aluminium flange (300x300x6.5mm, 65°C Max)

MECHANICAL DIMENSIONS



MOTOR MODEL	Mo / Pwr Nm / W	L	L1 + brake	B (h6)	D	V (h9)	W	U	N (h7)	M	F	E	S	R	W	W1 + brake
		mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	kg
MKSM 40M	0.16 / 50	88	-	8	25	3 x 12	9.2	M3 x 6	30	46	4.3	2.5	5	40	0.35	0.6
MKSM 40L	0.32 / 100	105	-	8	25	3 x 12	9.2	M3 x 6	30	46	4.3	2.5	5	40	0.5	0.75
MKSM 60M	0.65 / 200	105	135	14	30	5 x 20	16	M5 x 10	50	70	5.5	3	8	60	1.0	1.4
MKSM 60L	1.3 / 400	133	163	14	30	5 x 20	16	M5 x 10	50	70	5.5	3	8	60	1.4	1.8
MKM 70S	0.9 / 280	100	125	11	23	4 x 18	12.5	M4 x 10	60	90	5.5	2.5	10	75	1.35	1.55
MKM 70M	1.5 / 470	125	150	11	23	4 x 18	12.5	M4 x 10	60	90	5.5	2.5	10	75	1.9	2.1
MKM 70L	2.0 / 630	150	175	11	23	4 x 18	12.5	M4 x 10	60	90	5.5	2.5	10	75	2.4	2.6
MKM 70XL	2.7 / 850	175	200	11	23	4 x 18	12.5	M4 x 10	60	90	5.5	2.5	10	75	2.9	3.1
MKM 85S	1.8 / 570	115	145	14	30	5 x 25	16	M4 x 10	80	100	6.5	3	11	85	2.2	2.5
MKM 85M	3.3 / 1050	145	175	14	30	5 x 25	16	M4 x 10	80	100	6.5	3	11	85	3.2	3.5
MKM 85L	5.0 / 1600	175	205	14	30	5 x 25	16	M4 x 10	80	100	6.5	3	11	85	4.2	4.5



SCH pin	FUNCTION	(mm ²)	WIRE COLOR	MARK
A / B / C	U / W / V MOTOR	1	BLACK	U-1 / W-2 / V-3
1 / 2	(+) / (-) BRAKE	0.5	BLACK	6 / 5
4 / 3	SE+ / SE-	0.34	BLU / WHITE	-
⊕	PE	1	GREEN YELLOW	-
5	N.C.	-	-	-

DRIVE CODE	SOFTWARE CODE	MOTOR CODE	CABLE CODE
MKYD 230M 2.5/5-R01 EC-RD0-0000-Sxxx	(X000/X000/X000)	MKSM 60 M 30/230-000D00X P0 MKES1 ST-1 Sxxx	MKCH 5 STCH / 00 -030 Sxxx
DRIVE LINE MODEL: 230M = 1x230Vac SIZE: (see table on reverse) DUMPING SIZE: R01 = 100W/39Ω ext. resistor (opt) FEEDBACK: SE = Serial Encoder (std) EC = Commutation Encoder (opt) AE = Absolute Multiturn Encoder (opt) CONTROL MODE: CD0 = Clock Dir. (std) CB0 = CAN Bus (opt) RD0 = Diff. ref. (opt)	ADDITIONAL FEATURES: EMC line filter: 0 = Not (std) 1 = Present (opt) Tropicalized: 0 = Not (std) 1 = Present (opt) M3 Emulated Encoder: 0 = Not (std) 1 = Present (opt) (std for RD0) STO Safe Torque Off: 0 = Not (std) 1 = Present (opt)	MOTOR LINE SERIES: 40,60 SIZE: M,L NOMINAL SPEED: 30=3000rpm DRIVE'S VOLTAGE: 230=1x230Vac MOUNTING FLANGE: 000=standard (see table) HOLES: D=B5, thru (std), C=B14, threaded (opt) SHAFT DIAMETER: 00=standard (see table) SHAFT KEY: X=with key (std), W=w/out key (opt)	CONNECTION: ST=Springtec M15 (std) FEEDBACK: MKES1=Mack Ser.Enc.(std) MKEC1=Com.Enc.(opt) BRAKE: 0=w/out (std) 1=with (opt) TH. PROTECTION: P= PTC (std), N=w/out (opt)
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