



MACK
NANO

MKN

SERVO DRIVE



USB

CANopen

RS 485 RTU

12-140 VDC	50 ARMS	2500 W
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P. N. : D.S. / 27.02.18 / MKN / 11

DRIVE MODEL	MKN 48				MKN 60						MKN 110		MKN 140	
SIZE	1	5	8	10	1	5	8	10	25	50	15	35	8	25
Rated Current (Arms)	1	5	8*	10*	1	5	8*	10*	25**	50**	15**	35**	8**	25**
Peak Current x 3 sec (Arms)	2	10	16	20	2	10	16	20	50	100	30	70	16	50
Power Supply	12 - 48 Vdc (9 min - 65 Vdc max)				12 - 60 Vdc (9 - 82 Vdc max)						12 - 110 Vdc (9- 130 Vdc max)		20 - 140 Vdc (9- 182 Vdc max)	
Backup Logic Supply	12 - 24 Vdc (9 min-30 Vdc max)													
External Breaking Resistor					N.A.				≥ 2 Ω		≥ 5 Ω		≥ 8 Ω	
WEIGHT					60 g				110 g					
CASE					A				B					

NOTE * : Current refers to drive mounted on cabinet metal plate. ** : Current refers to drive mounted on alluminium plate or heat-sink (85°C max).

STANDARD FEATURES

- ◆ Driving motor range up to **2500W**
- ◆ Sinusoidal waveform current
- ◆ **BL** Brushless and **DC** Brushed Motor Control
- ◆ **EI** Incremental Encoder feedback for **DC** brushed motors, **SM** stepper motors
- ◆ **EIS** Incremental Serial Encoder feedback for **BL** brushless motors
- ◆ **EC** Commutation Encoder feedback for **BL** brushless motors
- ◆ **HS** Hall feedback for **BL** brushless motors
- ◆ **RA** Armature feedback for **DC** brushed motors
- ◆ **DT** Tachogenerator Feedback for **DC** brushed motors
- ◆ **SL** Sensorless feedback for **BL** brushless, **SM** stepper motors
- ◆ **CD** Clock and Direction Command
- ◆ **RD** Differential analog ref. velocity command ±10V (12 bit)
- ◆ **CB** Can BUS
- ◆ Single ended analog ref. torque ±10V (12 bit)
- ◆ **Speeder-One.2**® software interface (Windows based)
- ◆ **USB** access for setting and monitoring
- ◆ Operating frequency 8KHz (default) / 16KHz¹ / 24KHz¹
- ◆ Update rate : - Current loop = 8KHz - Position & Velocity = 4KHz
- ◆ Ambient temp.²:.....- operating at rated data: 0 / + 40°C(no derating)
- rated & pk current derating: + 40 / + 55°C max (2.5% / °C)
- storage - 20 / + 55°C
- ◆ Ambient Humidity²:.....- operating & storage 85% RH max
- ◆ Altitude (a.m.s.l.):.....- operating & storage 1000m
- rated & pk current derating: up to 2500m (1.5% / 100m)
- ◆ Protection rating:.....IP20 ◆ Storage time:.....1 year³

OPTIONS

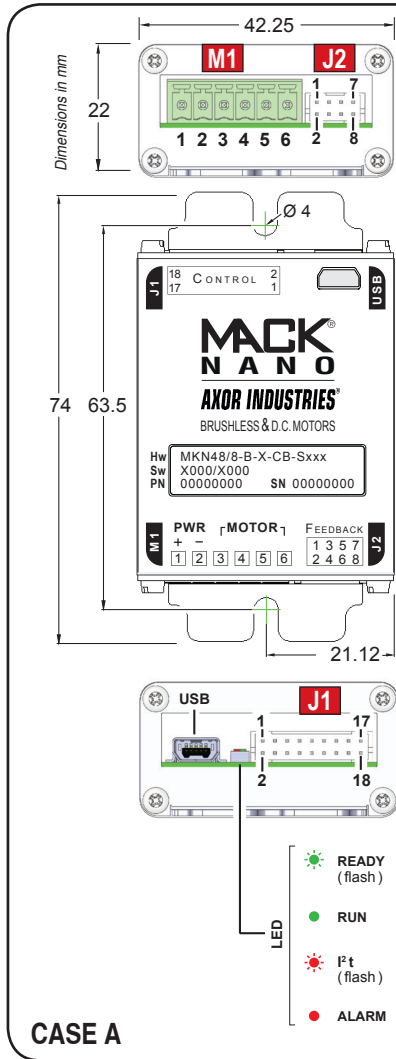
- ◆ **S** Stepper Motor Control (for case A only)
- ◆ **MB** ModBus-RTU, RS 485 Interface
- ◆ **Emulated Encoder** (for case B only)
- ◆ **Dumping Circuit** (for case B only)

APPLICATIONS

- ◆ Printing Machines
- ◆ Textile Machines
- ◆ Coding Machines
- ◆ Conveyors
- ◆ Machine Tools
- ◆ AGV Battery operated Machines
- ◆ Upgrade replacement for stepper system
- ◆ Packaging Machines
- ◆ Sewing Machines
- ◆ Jewellery Machines
- ◆ Actuators
- ◆ Door operators
- ◆ Antenna positioners
- ◆ CNC axis control

NOTE: ¹ 16KHz / 24KHz with derating of drive performances. ² Free from condensation ³ After one year storage the electrolytic capacitors must be reformed.





C O N T R O L M O D E

J1	CB (Can BUS)	MB (ModBUS)
1	+ Bkup Supply	+ Bkup Supply
2	AGND	AGND
3/4/5/6	D. IN 1/2/3/4	D. IN 1/2/3/4
7/8	An / D. OUT 1/2	An / D. OUT 1/2
9/10	An.IN 1 + / -	An.IN 1 + / -
11	An.IN Ref. Torque / +Tacho	An.IN Ref. Torque / +Tacho
12	AGND / -Tacho	AGND / -Tacho
13	Clock IN	Clock IN
14	Dir. IN	Dir. IN
15/16	Can H	RS485 B
17/18	Can L	RS485 A

F E E D B A C K

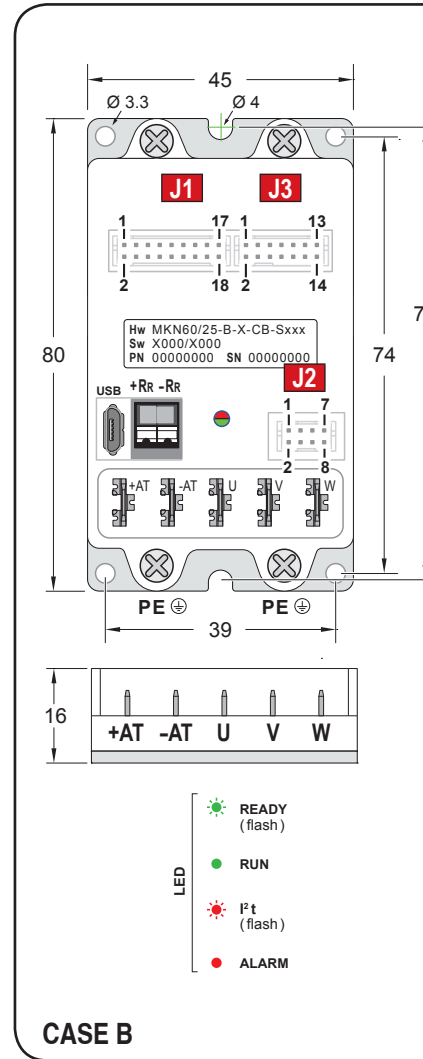
J2	FEEDBACK
1	+ Ch. A
2	+ Ch. B
3	+ Ch. Z / Zs
4	Hall U
5	Hall V
6	Hall W
7	AGND
8	+5Vs

P O W E R S U P P L Y / M O T O R

M1	BRUSHLESS	M1	BRUSHED	M1	STEPPER
1	+ AT POWER	1	+ AT POWER	1	+ AT POWER
2	- AT SUPPLY	2	- AT SUPPLY	2	- AT SUPPLY
3	U	3	N.C.	3	A
4	V MOTOR	4	+ M MOTOR	4	B MOTOR
5	W	5	- M MOTOR	5	A- MOTOR
6	N.C.	6	N.C.	6	B- MOTOR



CASE A



C O N T R O L M O D E

J1	CB (Can BUS)	MB (ModBUS)
1	+ Bkup Supply	+ Bkup Supply
2	AGND	AGND
3/4/5/6	D. IN 1/2/3/4	D. IN 1/2/3/4
7/8	An / D. OUT 1/2	An / D. OUT 1/2
9/10	An.IN 1 + / -	An.IN 1 + / -
11	An.IN Ref. Torque / +Tacho	An.IN Ref. Torque / +Tacho
12	AGND / -Tacho	AGND / -Tacho
13	Clock IN	Clock IN
14	Dir. IN	Dir. IN
15/16	Can H	RS485 B
17/18	Can L	RS485 A

F E E D B A C K

J2	X	R
1	+ Ch. A	SEN +
2	+ Ch. B	SEN -
3	+ Ch. Z / Zs	COS +
4	Hall U	COS -
5	Hall V	EXC +
6	Hall W	EXC -
7	AGND	AGND
8	+5Vs	N.C.

E M U L A T E D E N C . / S T O

J3	EMULATED ENC. / STO
1 / 2	CHA + / CHA -
3 / 4	CHB + / CHB -
5 / 6	CHZ + / CHZ -
7	AGND
8	N.C.
9 / 10	STO.IN 1 / 2
11 / 12	AGND
13 / 14	STO.OUT 1 / 2

P O W E R S U P P L Y / M O T O R

	BRUSHLESS	BRUSHED
+AT	POWER SUPPLY	+AT POWER SUPPLY
-AT		-AT POWER SUPPLY
PE	MOTOR	PE
U		U N.C.
V		V + M MOTOR
W		W - M MOTOR
PE		PE

CASE B

MACK® NANO				HARDWARE CODE				SOFTWARE CODE				
MKN	48 / 5	-	B	-	X	-	CB 00	-	Sxxx	X000	/	X000
DRIVE LINE	MODEL	SIZE	MOTORTYPE: B = Standard: BL Brushless DC Brushed S = Optional: (for case A only) SM Stepper BL Brushless DC Brushed	FEEDBACK: X = Standard R = Resolver (for case B only)	CONTROL MODE: CB = Can BUS (std) MB = RS 485 MODBUS-RTU (opt)	EMULATED ENCODER / STO 0 = without (std) 1 = with STO (safe torque off) (opt) 2 = with EMULATED ENC. (opt) 3 = with STO + EMULATED ENC. (opt)	DUMPING CIRCUIT: 0 = w/out (std), 1 = with (opt) (for case B only)	SPEC	only	FIRMWARE VERSION	CONFIG FILE	