MOTION CONTROL PRODUCTS

Innovative products for automation industry

MACK® NANO

— MKN —

SERVODRIVE

12-140 VDC	40 ARMS	2500 W

P. N. : D.S. / 14.07.17 / MKN / P04

DRIVE MODEL	MKN 48				MKN 60		MKN 110		MKN 140	
SIZE	1	5	8	10	25	40	15	35	8	25
Rated Current (Arms)	1	5	8*	10*	25**	40**	15**	35**	8**	25**
Peak Current x 3 sec (Arms)	2	10	16	20	50	80	30	70	16	50
Power Supply	**12 - 48 VDC** (9 VDC min. – 65 VDC max.)				**12 - 60 VDC** (9 VDC min. – 82 VDC max.)		**12 - 110 VDC** (9 VDC min. – 130 VDC max.)		**20 - 140 VDC** (9 VDC min. – 182 VDC max.)	
Backup Logic Supply	**12 - 24 VDC** (9 VDC min. – 30 VDC max.)									
WEIGHT	**60 g (CASE A)**				**110g (CASE B)**					

NOTE * : Rated current refers to drive mounted on cabinet metal plate
** : Rated current refers to drive mounted on aluminium plate or heat-sink (85°C max). Contact us for details.

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 analogue ref. velocity command ±10V (12 bit)
- **CB** Can BUS
- Single ended analogue ref. torque ±10V (12 bit)
- Over / Under voltage, over temperature, overcurrent and I^2t monitoring
- **Speeder-One®** software interface (Windows based)
- **USB** access for setting and monitoring
- 4 INPUT / 2 OUTPUT programmable
- Operating frequency 8KHz (default) / 16KHz[1] / 24KHz[1]
- Current loop update rate 8KHz
- Position & Velocity update rate 4KHz

- Ambient temp.[1]: - 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 Humidity[1]: - 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 year[2]

OPTIONS

- **S** Stepper Motor Control
- **MB** ModBus-RTU, RS 485 Interface
- **Emulated Encoder** fixed emulation 1:1 ratio (for case B only)
- **Dumping Circuit** (for cased 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

NOTES: [1] 16KHz / 24KHz with derating of drive performances. Contact us for details.
[2] After one year storage the electrolytic capacitors must be reformed. Contact us for details

CE Pb RoHS

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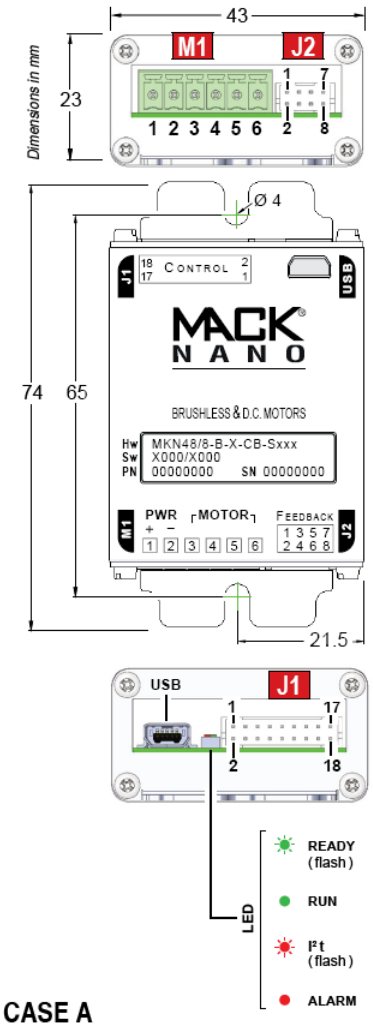


CASE A

CONTROL MODE

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

FEEDBACK

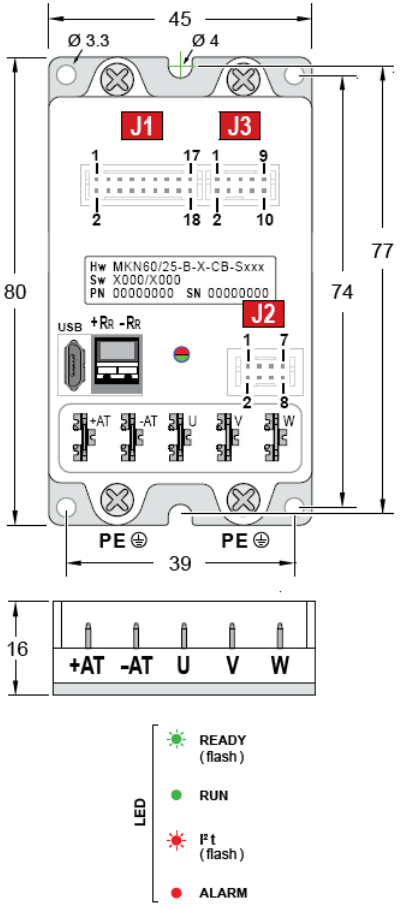
J2	FEEDBACK
1	+ Ch. A
2	+ Ch. B
3	+ Ch. Z / + Ch. Zs
4	Hall U
5	Hall V
6	Hall W
7	AGND
8	+5Vs

POWER SUPPLY / MOTOR

M1	BRUSHLESS	
1	+ AT	POWER SUPPLY
2	– AT	POWER SUPPLY
3	U	MOTOR
4	V	MOTOR
5	W	MOTOR
6	N.C.	

M1	BRUSHED	
1	+ AT	POWER SUPPLY
2	– AT	POWER SUPPLY
3	N.C.	
4	+ M	MOTOR
5	– M	MOTOR
6	N.C.	

M1	STEPPER	
1	+ AT	POWER SUPPLY
2	– AT	POWER SUPPLY
3	A	MOTOR
4	B	MOTOR
5	A-	MOTOR
6	B-	



CASE B

CONTROL MODE

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

FEEDBACK

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

ENC. EMULATED

J3	ENC. EMULATED
1	CHA
2	CHA –
3	CHB
4	CHB –
5	CHZ
6	CHZ –
7	AGND
8/9/10	N.C.

POWER SUPPLY / MOTOR

	BRUSHLESS	
+AT	POWER SUPPLY	
-AT	POWER SUPPLY	
PE	POWER SUPPLY	
U	MOTOR	
V	MOTOR	
W	MOTOR	
PE		

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

MACK® NANO — HARDWARE CODE

MKN 48 / 5 - B - X - CB - 0 0 - Sxxx

- **DRIVE LINE**
- **MODEL**
- **SIZE**
- **MOTOR TYPE:** B = Standard: BL Brushless, DC Brushed; S = Optional: (for case A only) SM Stepper, BL Brushless, DC Brushed
- **FEEDBACK:** X = Standard
- **CONTROL MODE:** CB = Can BUS (std); MB = RS 485 MODBUS-RTU (opt)
- **DUMPING CIRCUIT:** (for case B only) 0 = w/out (std), 1 = with (opt)
- **EMULATED ENCODER:** (for case B only) 0 = w/out (std), 1 = with (opt)
- **SPEC. NUMBER** (opt)

SOFTWARE CODE

X000 / X000

- FIRMWARE VERSION
- CONFIG FILE

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