The motion platform KannMOTION

Stepper motor Driver / Kann-K17a motor driver PCB Second Generation	KannMOTION series

Product description

- Stepper motor driver for bipolar motors
- Integrated magnetic position encoder
- Motor drive up to 36V/3A [1)]
- Capable of different motor and control voltages

Interfaces

- 4 digital inputs / with adjustable thresholds
- 2 digital output / configurable logic (PNP /NPN)
- 1 analogue input (0..10V)
- 1x RS232

Benefits / Software

- Closed or open loop operation
- Build in PLC functions
- Variety of software function
- Fully controllable over a terminal. Protocol is open and free to use
- Flexible configuration and programming via free KannMOTION StepperConfigTool
- Updates, Documents, Tutorials and Videos at www.KannMOTION.de (in progress)


Technical data (Maximum ratings)

Rated supply voltage (motor drive)	12 to 36 VDC
Rated supply voltage (Logic)	6 to 30 VDC
Max. motor phase current [1)]	7 A_{peak} / 3 A_{RMS}
Ambient temperature range	-10 to +40°C
Connection terminals	14 pole / wire max. 0.5 mm^2 / 6A per pin
Position control accuracy	+/-1°[2)]
Motor control mode	Micro stepping

Ordering information

Part number	Description	Acessoirs
100 401 . xxx	Kann-K17a motor driver PCB, 6-DIO, 1xAin	
200 933 . xxx	J1 / 14 pole female 0.5mm^2 max 6A	x

1) Might be limited in time, restricted by losses! <Chip temperature>, take care about PCB cooling depending on application
2) Depending on mechanical positioning of the magnet

Dimensions (in mm)

TOP VIEW

SIDE VIEW
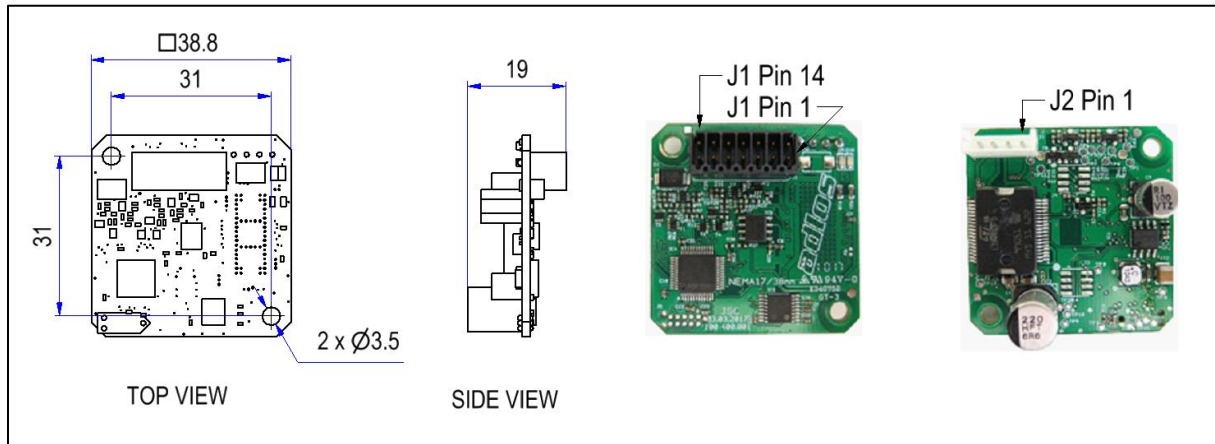
Connection terminals J1

Pin	Description	Nominal	Absolute max	Comment
1	GND	-	-	Reference
2	Vmot	12 / 24 / 36 VDC	45V	Supply motor drive
3	RTSin / Boot	0	-15V/+30V	Update control input
4	AIn	0..10V	30V	Analog input
5	R_x	±5V	±15V	RS232
6	T_x	±5V	±15V	RS232
7	Out2 [3]	GND..Vin Imax : 10mA	Vin	- Short-circuit-proof - Capacitive load max. 100nF - Overload detection @ 15mA
8	Out1 [3]			
9	DIn4 [4]	3.3V/ 5V / 12V / 24V	30V	Thresholds defined in firmware
10	DIn3 [4]		30V	
11	DIn2 [4]		30V	
12	DIn1 [4]		30V	
13	GND	-	-	Reference
14	Vin	12 / 24 VDC	30V	Supply of PCB logic, also PCB output

3): See section software configuration of outputs

4): See section software configuration of inputs

Software Configuration of Input Thresholds

Setting	V_{iH} (High level input voltage)	V_{iL} (Low level input voltage)
SPS_24V	>15.0	<5.0
SPS_12V	>7.5	<2.5
TTL_5V	>2.7	<1.5
TTL_3V3	>2.0	<1.0

Software Configuration of Outputs

Setting	V_{OH} (High level output voltage)	V_{OL} (Low level output voltage)
Push (PNP)	Vin – 0.5V @ 10mA	HiZ[5]
Pull (NPN)	HiZ[5]	GND + 0.5V @ 10mA
Push Pull	Vin – 0.5V @ 10mA	GND + 0.5V @ 10mA

5): HiZ means high impedance, level is depending on load connected, level not maintained by KannMOTION

Tools, further documents

adlos offers for it's customers some Helping and Design-In Tools.

Communication Description (100570)

Serial Protocol description document, 100570.

KannMotionManager Tool (190081), manage your drives

KannMOTION Manage is the general tool for our GEN2 drives. This tool comes with an integrated C-coder and a visual drag and drop User interface for customizing your drive.

http://kannmotion.adlos.com/download/kannmotionmanager/application/SetupKannMOTIONManager.zip

ComWatch Communication Tool (190077), for Life values

ComWatch is a helping tool for engineers and technicians to explore device specific parametes, read out tracking data and settings and doing firmware updates.

The software is as it is, and in principle for free for adlos customers, the software is not made for a broad range of standard users, it's made in principle for technical engineers which are used in working w. windows based software and have some understanding of technical things.

http://kannmotion.adlos.com/download/comwatchtool/ComWatchSetup.zip

KannMOTION API

Adlos offers a windows API (Library) to communicate with our drives. The API enables much shorter implementation of KannMOTION communication with your own Windows based Toolset.

Part number	Short / level	Description	
190073	LEVEL1 API-LLL	LowLevelAbstraction offers RD/WR functions to Com, organizes Checksum and protocol Itself	
190074	LEVEL2 API-HAL	Hardwareabstraction offers data object medeling, means it will take care bout device specifc XML-files	
190080	LEVEL3 API-BAL	BusAbstraction Offers bus data support like CAN	

Proper use

Do not connect or disconnect motor during operation!

Motor cable and motor inductivity might lead to voltage spikes when the motor is disconnected / connected while energized. These voltage spikes might exceed voltage limits of the driver MOSFETs and might permanently damage them. Therefore, always disconnect power supply before connecting / disconnecting the motor

Keep the power supply voltage below the upper limit!

Otherwise the driver electronics will seriously be damaged! Especially, when the selected operating voltage is near the upper limit a regulated power supply is highly recommended.

Check your mechanical system, is it able to drive the motor, avoid motor being used as generator

Every motor could be operated as an voltage generator, so take care about generated voltage, this might damage your electronics by overvoltage. Add some voltage limiter units to keep supply voltage in range.

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