



Product description

KgE

- Stepper motor driver for bipolar motors
- Integrated magnetic position encoder
- Motor drive up to 36V/2.8A¹⁾
- Capable for different motor and control voltages

Interfaces

- 4 digital inputs / with adjustable thresholds
- 2 digital output / configurable logic (PNP /NPN)
- 1 analog input (0..10V)
- 1x RS485

Benefits / Software

- Closed operation
- Build in PLC functions
- Variety of software functions
- Fully controllable over a terminal. Protocol is open and free to use
- Flexible configuration and programming via free KannMOTION Manager
- Updates, documents, tutorials and videos at www.KannMOTION.com



RS485 - Gen 2

Technical data (Maximum ratings)

Rated supply voltage (Motor)	12 to 36 VDC
Rated supply voltage (Logic)	6 to 30 VDC
Max. motor phase current ¹⁾	2.8 A
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	Accessories
100 701 . xxx	Kann-K17e motor driver PCB, 6-DIO, 1xAin	
200 933 . xxx	J1 / 14 pole female 0.5mm ² max 6A	х

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)



Connection terminals J1

Pin	Description	Nominal	Absolute max	Comment
1	GND	-	-	Reference
2	Vmot	12 / 24 / 36 VDC	40V	Supply motor drive
3	RS485-n	2.5	±6V	RS485 negative Line
4	Ain	010V	30V	Analog input
5	NC	0		Not connected
6	RS-485-p	2.5	±6V	RS485 positive Line
7	Out2 ³⁾	GNDVin	Vin	- Short-circuit-proof - Capacitive load max, 100nF
8	Out1 ³⁾	Imax: 10mA		- Overload detection @ 15mA
9	DIn4 ⁴⁾		30V	
10	DIn3 ⁴⁾		30V	Thurselate de Caradia Consume
11	DIn2 ⁴⁾	- 3.3V/ 5V / 12V / 24V	30V	- Thresholds defined in firmware
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





Connection terminals J4

Pin	Description	Comment
1	A-	Motor phase A+
2	A+	Motor phase A-
3	B+	Motor phase B+
4	B-	Motor phase B-

Software Configuration of Input Thresholds

Setting	V _{iн} (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	Voн (High level output voltage)	VoL (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 provides its customers with supportive tools and resources for design integration.

Communication Description (100570)

Document on Serial Protocol Description, reference number 100570.

KannMotion Manager tool (190081), manage your drives



The KannMOTION Manager serves as the comprehensive software suite for our Generation 2 (GEN2) drives, featuring an integrated C-coder alongside a user-friendly visual drag-and-drop interface for personalized drive customization. Access to the tool is available in the download section. <u>https://www.kannmotion.com/en/downloads/</u>

ComWatch Communication Tool (190077), for Life values



ComWatch is a free, specialized tool for engineers and technicians to check device details, get tracking data and settings, and update firmware. It's designed for kannMOTION customers and best for those familiar with Windows software. Users should have some technical knowledge.

For access, please refer to the download section. https://www.kannmotion.com/en/downloads/

Additional Documentation and important information

The document Security Manual KannMOTION (you find the document in the download section of https://www.kannmotion.com/en/downloads/ specifies the intended use of the KannMOTION. It also has useful information related to all KannMOTION products and defines the laws and standard the KannMOTION is designed for and with. Please read this document carefully and comply with the information given in this document.



Proper use



Do not connect or disconnect motor during operation

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



Ensure the power supply voltage remains below the upper limit

If the supply voltage exceeds the upper limit, the driver electronics can be seriously damaged. Especially when operating near the upper voltage limit, using a regulated power supply is strongly recommended.



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

Every motor can operate as a voltage generator; therefore, be mindful of the generated voltage, as this might damage your electronics through overvoltage. Incorporate voltage limiter units to maintain the supply voltage within the acceptable range.

Back-EMF



Back-EMF occurs when a motor rapidly decelerates, acting like a generator and sending a reverse current back to the power source. If the power source cannot absorb this surplus current, it could damage the motor's power supply and output pins. To prevent such damage, it is crucial to incorporate back-EMF considerations into the system's design.



Do not Powerup without GND connection / Do not remove GND connection before Vin/Vmot

Only switch on your supply when you are certain that GND is correctly connected. Do not remove GND while the system is running; in both situations, you risk damaging your electronics.



Aout shall be connected with minimum output impedance of 50 $\ensuremath{\Omega}$

Aout must be connected with a minimum output impedance of over 50Ω to ensure safe operation. Directly connecting Aout to GND, especially when combined with 'hot-plugging' or incorrect GND connections, can damage the output under certain conditions. To prevent damage to the Aout output circuit, maintaining an impedance of at least 50Ω on the analog output is crucial.

Wiring Materials / Fuse



Use a wire size appropriate for the rated output current of the Power Supply. Extra caution is necessary if the output current from one Power Supply is distributed among multiple loads, as the Power Supply's overload protection circuit may not function properly in such cases. Therefore, incorporating a fuse in the line or other protective measures should be considered.

Contact information

Adlos AG Föhrenweg 14 FL-9496 Balzers

Thomas Vogt <u>Thomas.Vogt@adlos.com</u> Tel: +423 263 63 63

Countries: CH, A, LI, SK, IT <u>www.adlos.com</u>

KOCO MOTION GmbH Niedereschacher Straße 54 D-78083 Dauchingen

Olaf Kämmerling <u>O.Kaemmerling@kocomotion.de</u> Tel: +49 7720/995858-0

Countries: DE, BE, NL, LU www.kocomotion.de