HKS 2A - Compact Motion Control System

1. Features

- 2 Channels Up to 2 Amps All Stepper Compatible with Engines.
- Isolated USB 2.0 - RS232 Communication.
- All Software with MODBUS Protocol Ability to be Used with Languages.
- Windows / Linux / MacOS with FTDI Chip Compatible with Operating Systems.
- Cross-Channel Synchronous Motion Feature.
- Hardware Optical Isolated Limit Switches.
- 1 Optically Isolated Digital Input.
- 1 Relay Output.
- User Programmable.
- Sample LabVIEW Codes.

2. Remarks

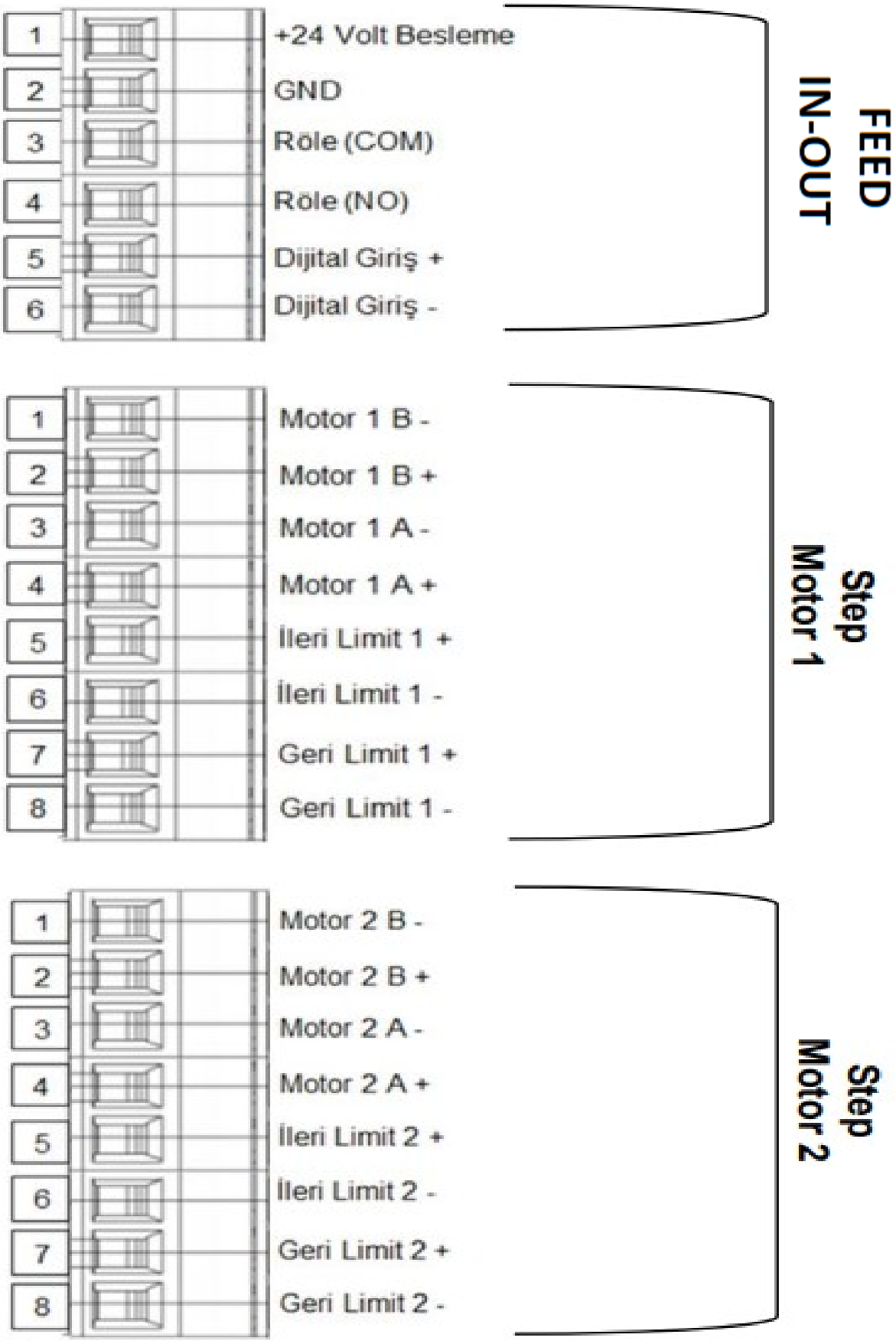
Sold as "Compact Motion Control System"
offered driver, all kinds of 2-axis up to 2 Amps
It can work in harmony with stepper motor. Every operation
All software languages as well as compatible with system
It can be used under HKS 2A standard communication of the product is USB-RS232 Modbus
It is an RTU and the sample LabVIEW library is available to our customers.
offered free of charge.

3. Applications

DEVICE NAME	DIMENSIONS
HKS 2A	15CM LENGTH
	11.2CM WIDTH
	5.1CM HEIGHT

- Motion Positioning Applications
- Automation Applications,
- CNC Applications
- 3D Printer Applications
- Laser Cutting Applications

4. Terminal Input and Functions



5. MODBUS Addresses

DEVİCE	DATA TYPE	ADRES	DATA	DATA TYPE	DEFINITION
STEPPER DRİVER	HOLDING REGİSTER	0	ACCELERATION1(LOW)	FLOAT	speed increase per second [type/second] NOTE: each [laps/second2] is equal to 1600[steps/second2]. Calculated for 1.8° Stepper Motor.
		1	ACCELERATION1(HIGH)		
		2	ACCELERATION2(LOW)		
		3	ACCELERATION2(HIGH)		
		4	ACCELERATION3(LOW)		
		5	ACCELERATION3(HIGH)		
		6	ACCELERATION SLOW1(LOW)		Deceleration Value per Second [Lap/Second2] NOTE: Every [Tur/Second2], 1600 [Steps/Second2]' Equal. Calculated for 1.8° Stepper Motor.
		7	ACCELERATION SLOW1(HIGH)		
		8	ACCELERATION SLOW2(LOW)		
		9	ACCELERATION SLOW2(HIGH)		
		10	ACCELERATION SLOW3(LOW)		
		11	ACCELERATION SLOW3(HIGH)		
		12	SPEED1(LOW)		Speed [Lap/Second] NOTE: Every [Tur/Second2], 1600 [Steps/Second2]' Equal. Calculated for 1.8° Stepper Motor.
		13	SPEED1(HIGH)		
		14	SPEED2(LOW)		
		15	SPEED2(HIGH)		
		16	SPEED3(LOW)		
		17	SPEED3(HIGH)		
		18	TARGET STEP1(LOW)	INT32	Step Value to Go
		19	TARGET STEP1(HIGH)		
		20	TARGET STEP2(LOW)		
		21	TARGET STEP2(HIGH)		
		22	TARGET STEP3(LOW)		
		23	TARGET STEP3(HIGH)		
		24	MOTOR CURRENT1	UİNT16	Motor DC Current Value [mA]
		25	MOTOR CURRENT2		
		26	MOTOR CURRENT3		
	INPUT REGİSTER	0	STEP1(LOW)	INT32	Current Step Value
		1	STEP1(HIGH)		
		2	STEP2(LOW)		
		3	STEP2(HIGH)		
		4	STEP3(LOW)		
		5	STEP3(HIGH)		
		6	STATE	UİNT16	*
		7	RESET SOURCE		***
		8	DRİVERSTATUS1		****
		9	DRİVERSTATUS2		
		10	DRİVERSTATUS3		
	COİL REGİSTER	0	STARTMOTOR1		
		1	STARTMOTOR2		
		2	STARTMOTOR3		
		3	CLEARRESETSOURCE		ResetSource Reset Input Register
		4	POWERONDRİVERS		0: Drivers Are Not Energized, 1: Drivers Are Energized
		5	DİGİTALOUTPUT1		Determines the Position of the Digital Output
		6	SAVEREFCURRENTS		Reference Currents Recorded
	DİSCRETE INPUT	0	DİGİTALINPUT1		Position of Digital Input

5.1. MODBUS Address Description

State* : Indicates the motion status of the motors.

StopState: Shows how the engines last stopped.

Bit-by-bit definition of register:

- stopState3[13:14] state3[10:12] stopState2[8:9] state2[5:7] stopState1[3:4] state1[0:2]
- If State = 0, the motor stops, if 1, the motor accelerates, if 2, the motor is at the reference speed, if 3, the motor is decelerating, 4, the motor has come to the last step.
- If StopState = 0 the motor stopped normally, 1 stopped by locking, 2 stopped on demand before reaching the target, 3 stopped because it came to the sensor.

StartMotor:** When set, the motor moves to the target specified by refStep.

- If the target is less than 7 steps, startMotor 0 is made without moving.
- If this coil is set to 0 while in motion, the motor is stopped and recorded as stopState = forcedStop.
- If the motor has reached the step specified by refStep, this coil is set to 0.

ResetSource*:** Indicates from which source the microcontroller was reset:

- 1: Power On reset, 2: Window watchdog reset, 3: independent watchdog reset,
  4: Software reset, 5: Reset from NRST pin, 6: Unusual reset

DriverStatus**:** Shows the fault status of the motor drivers.

Bit definition of register:

- DriverOvertemperatureShutdown[1] DriverOvertemperatureWarn[2]
- If OvertemperatureShutdown = 0, the driver is running,
  If 1, the driver was stopped due to excessive temperature.
- If OvertemperatureWarn = 0, the driver is at a reasonable temperature,
  If 1, the drive is overheated.

5.2. MODBUS Communication Features

ÖZELLİKLER	
MODBUS MODE →	RTU
BAUD RATE →	15200
FLOW CONTROL →	NONE
PARITY →	NONE

6. HKS 2A Cihazı Dataları

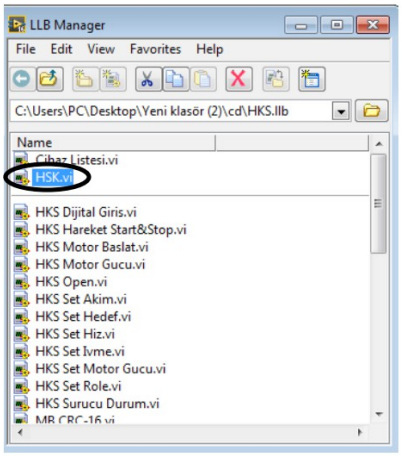
	LEAST	NOMINAL	MOST
+ 24 Volt Supply(volt)	9 V	24 V	30 V
+ 24 Volt Supply (Current)	0,2 A	1 A	2 A
Digital Input (Voltage)	4,7 V	5 V	30 V
Digital Input (Current)	1,5 m.A	1,625 m.A	12 m.A
Forward Limit (Voltage)	4,7 V	5 V	30 V
Forward Limit (Current)	1,5 m.A	1,625 m.A	12 m.A
Back Limit (Voltage)	4,7 V	5 V	30 V
Back Limit (Current)	1,5 m.A	1,625 m.A	12 m.A

7. Sample LabVIEW Library and Installation

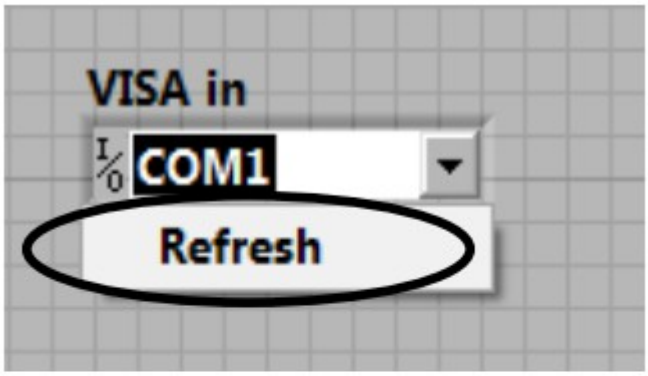
HKS 2A device can work compatible with all software languages. With sample LabVIEW libraries offered to our customers. Customers who want to use the product with the sample LabVIEW library The steps to be followed are listed below.

Connect the HKS 2A to the computer.

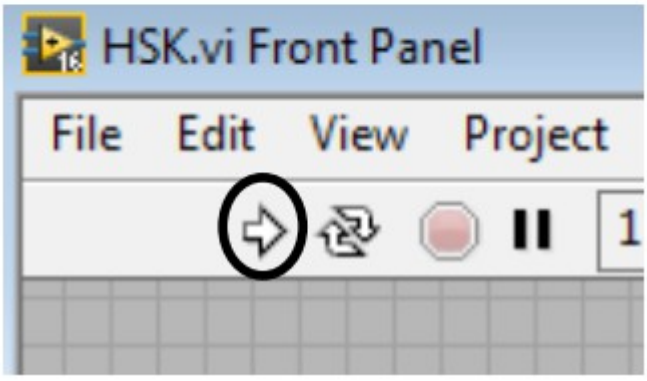
Download the driver file of the product. "download driver"	Download the driver file.
Download the HKS 2A instrument LabVIEW library. "download library"	Download the LabVIEW Library.
	Open the file you downloaded in the library.



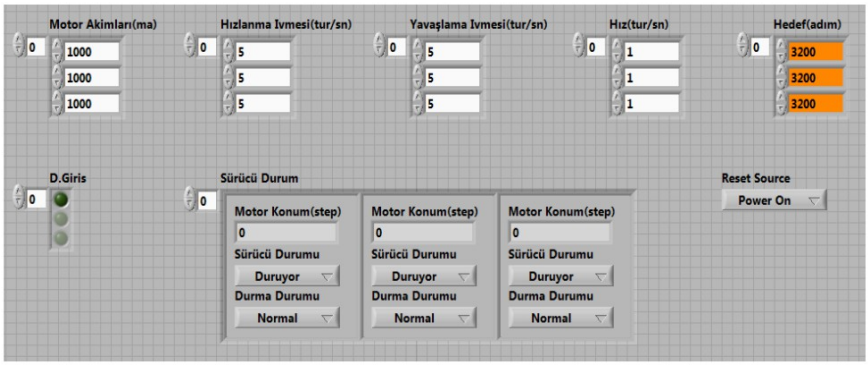
Open the HKS.vi file.



Update your COM settings.



When you RUN the program, the device will be ready for use.



no longer necessary set parameters by stepper motors work on you can do.

8. Windows/Linux/MacOS Operating Systems Driver

You can find the driver files for all operating systems here.