

Installation instructions

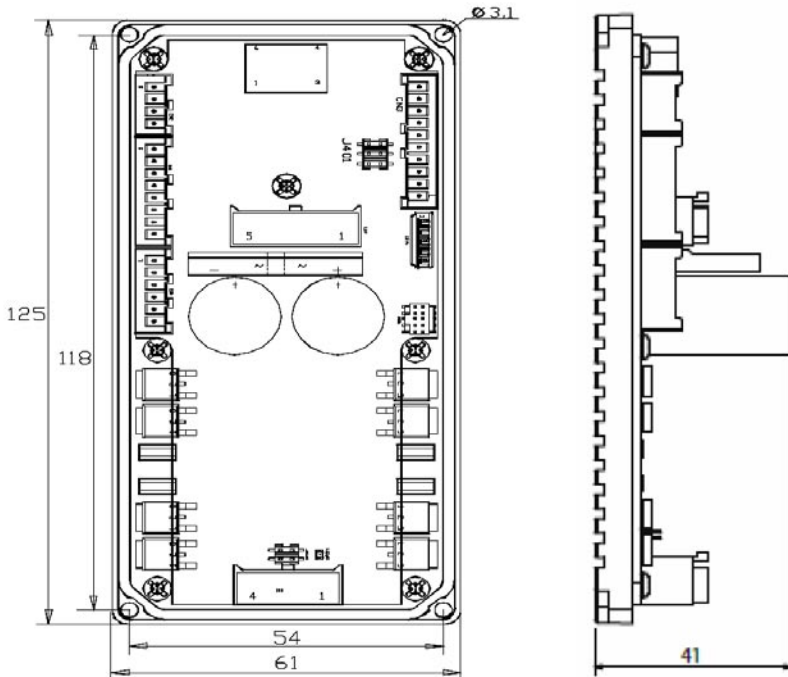
i Refer to installation use and maintenance manual for more information.
Available user manual at link <http://www.everelettronica.it/manhw.html>



Controller bipolar open frame drive for 2 phase step motor

- AC Power Supply: 18 ÷ 56Vac
- DC Logic Supply: 24Vdc (optional)
- Phase current: up to 4,2 ARMS (6 APK)
- Chopper frequency: ultrasonic 40KHz
- Steplless Control Technology (65536 position per turn)
- Protections: over-current, over-temperature, short circuit phase-phase motor and phase-ground
- Direct feedback interface: 5V TTL/CMOS incremental encoder (not isolated)
- Modbus or Canbus communication interfaces
- Service SCI interface for programming and real time debugging
- 4 digital inputs (opto-coupled)
- 2 digital outputs (opto-coupled)
- 2 analog inputs
- Size : 125 x 61 x 41mm (refer to picture);
- Working temperature 5°C ÷ 40°C; Storage temperature -25°C ÷ 55°C
- Humidity : 5% ÷ 85% not condensing

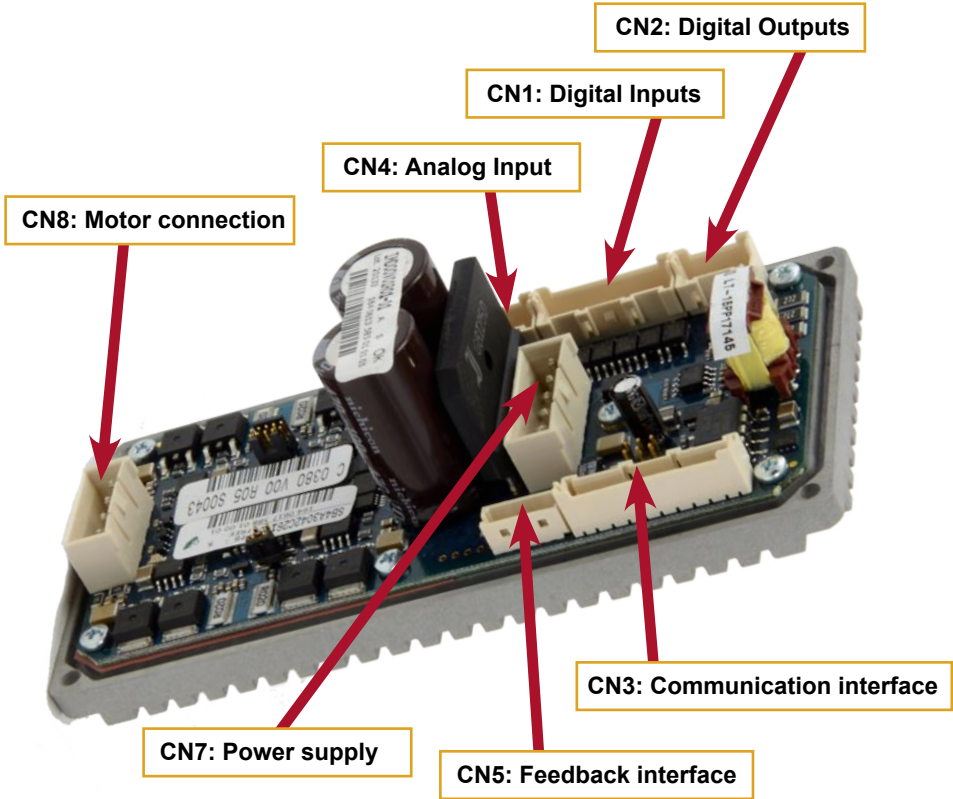
Mechanical data



i For further support please contact support@everelettronica.it.

System connections

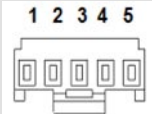
Connectors: position, function and pinout.



CN7: Power supply

Connector: Housing Wire 3.96 mm
Molex cod 35156-0500
Hand Crimp tool: CR60622B

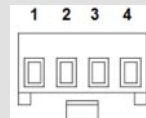
CN7.1	-Vlog (OPTIO-	Negative logic supply input	GND
CN7.2	+Vlog (OPTIO-	Positive logic supply input	
CN7.3	PE	Protective Earth	
CN7.4	ACin	AC power supply	18 ÷ 56 Vac
CN7.5	ACin	AC power supply	18 ÷ 56 Vac



CN8: Motor Connection

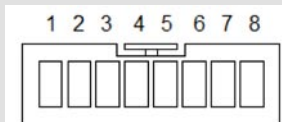
Connector: Housing Wire 3.96 mm
Molex cod 35156-0400
Hand Crimp tool: CR60622B

CN8.1	Motor Phase B/
CN8.2	Motor Phase B
CN8.3	Motor Phase A
CN8.4	Motor Phase A/

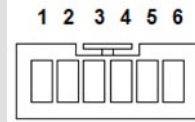


CN1: Digital inputs - 4 digital inputs (optocoupled)**Connector: Housing Wire 2.5 mm****JST cod XAP-08V-1****Hand crimp tool: WC-700M**

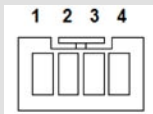
CN1.1	+IN0	DIG_IN	Digital input positive side
CN1.2	-IN0	DIG_IN	Digital input negative side
CN1.3	+IN1	DIG_IN	Digital input positive side
CN1.4	-IN1	DIG_IN	Digital input negative side
CN1.5	+IN2	DIG_IN	Digital input positive side
CN1.6	-IN2	DIG_IN	Digital input negative side
CN1.7	+IN3	DIG_IN	Digital input positive side
CN1.8	-IN3	DIG_IN	Digital input negative side

**CN4: Analog inputs - 2 analog inputs****Connector: Housing Wire 2.5 mm****JST cod XAP-06V-1****Hand crimp tool: WC-700M**

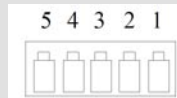
CN4.1	AGND	PWR_OUT	Output negative reference for potentiometer
CN4.2	+IN_AN0	AN_IN	Analog input 0 positive side
CN4.3	-IN_AN0	AN_IN	Analog input 0 negative side
CN4.4	+IN_AN1	AN_IN	Analog input 1 positive side
CN4.5	-IN_AN1	AN_IN	Analog input 1 negative side
CN4.6	V_POT	PWR_OUT	Voltage supply output for potentiometer

**CN2: Digital Outputs - 2 digital outputs (optocoupled)****Connector: Housing Wire 2.5 mm****JST cod XAP-04V-1****Hand crimp tool: WC-700M**

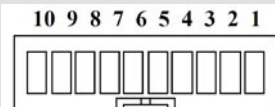
CN2.1	DIG_OUT0	DIG_OUT	PNP digital output OUT0
CN2.2	DIG_OUT1	DIG_OUT	PNP digital output OUT1
CN2.3	V-OUT	PWR_IN	24Vdc supply for digital outputs
CN2.4	VSS	PWR_IN	Negative input supply for digital outputs

**CN5: Feedback interface - 5V TTL/CMOS incremental encoder (not isolated)****Connector: Housing Wire 2.0 mm****Molex cod 51004-0500****Hand crimp tool: 63819-0100**

CN5.1	+5E	PWR_OUT	Positive +5Vdc power supply output
CN5.2	GND	PWR_OUT	Negative side of supply
CN5.3	ENC_ZERO	DIG_IN	Encoder Zero signal input
CN5.4	ENC_PHB	DIG_IN	Encoder Phase B input
CN5.5	ENC_PHA	DIG_IN	Encoder Phase A input

**CN3 Communication interfaces****Connector: Housing Wire 2.5 mm****JST cod XAP-10V-1****Hand Crimp tool; WC-700M**

	CANbus Version	Modbus Version	
CN3.1		GND	Service SCI Interface
CN3.2		+5V	
CN3.3		SERV_SCI_DE	
CN3.4		SERV_SCI_TXD/RXD	
CN3.5	CAN_GND		CANBus or RS485 interfaces (in & out)
CN3.6	CAN_H	OVA	
CN3.7	CAN_L	Data +	
CN3.8	CAN_GND	Data -	
CN3.9	CAN_H	OVA	
CN3.10	CAN_L	Data+	
		Data-	

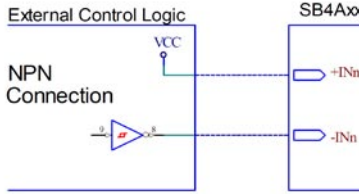
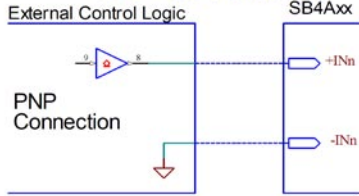


Digital inputs connection

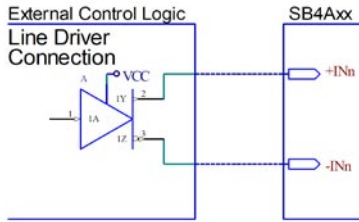


Differential PNP, NPN and Line Driver type.

3.3 - 24V INPUT



2 - 24V INPUT

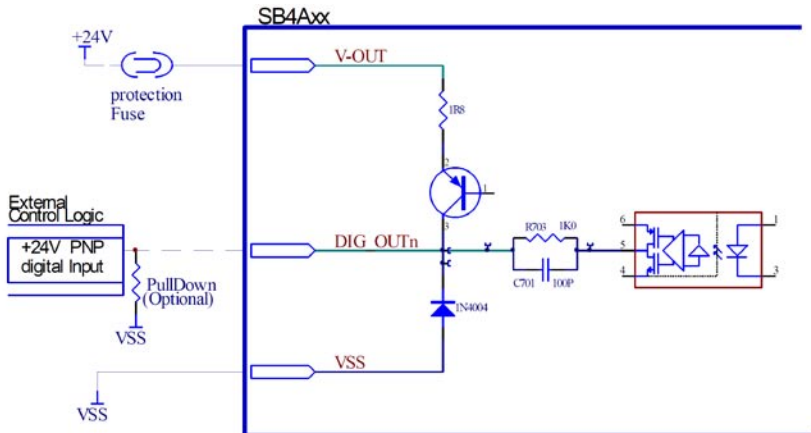


N.B.: It's recommended to use 2Vdc digital inputs only in Differential Line-Driver configuration to have more noise immunity.

Digital outputs connection



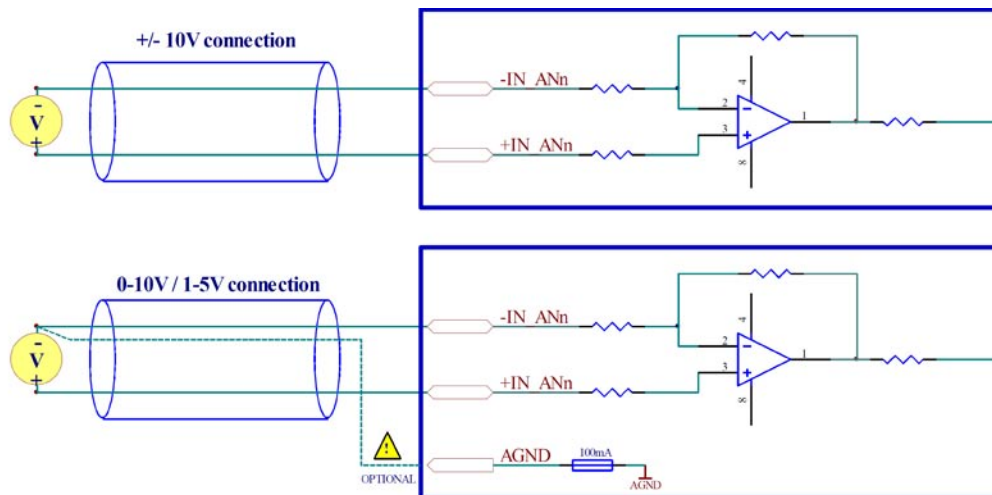
Digital outputs $V_{OUTmax}=24Vdc$, $I_{OUTmax}=100mA$.



Analog input connection

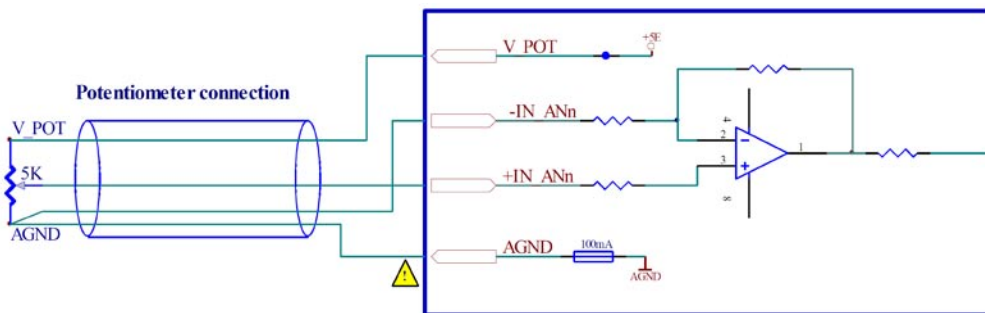
i The resolution of the analog inputs depends from the type of the connection which could be defined by software: differential or potentiometer.

DIFFERENTIAL CONNECTION



! The connection from an external reference and AGND should be preceded by a thorough risk analysis on the machine/circuit in which the drive will be installed.

POTENTIOMETER CONNECTION



! AGND is internally in common with power ground, this is potentially dangerous. Take all necessary measures to avoid possible contacts in the final installation.

Service SCI connection



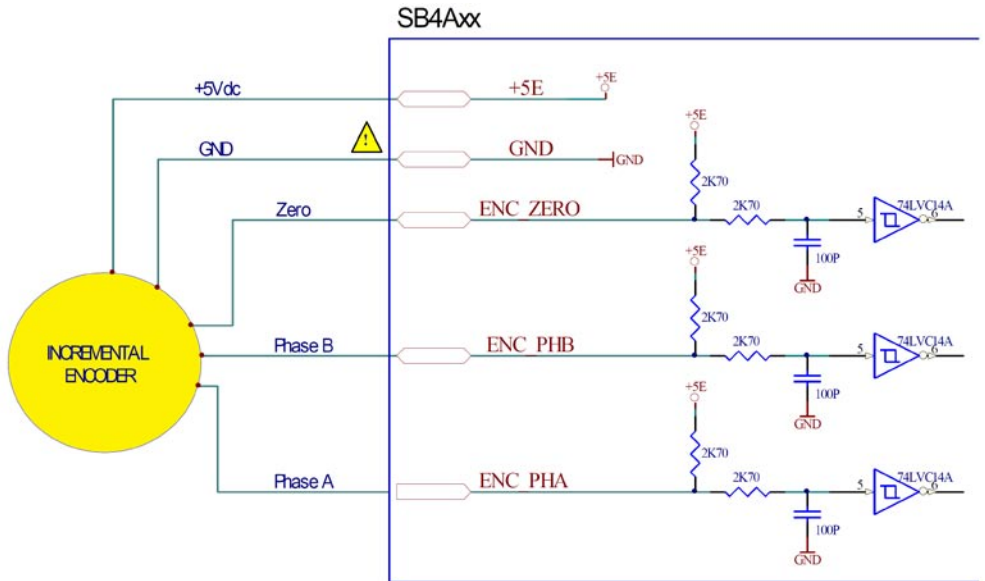
This connection is only possible with hardware and software provided by Ever.
Kit code: SB4A_SERV00-SL or SB4A_SERV00-EE.



Feedback connection



5Vdc TTL/CMOS digital inputs (electrically NOT-isolated).



GND is internally in common with power ground, this is potentially dangerous. Take all necessary measures to avoid possible contacts in the final installation.

Mating connectors

Connector	Description and ordering code
CN1	JST cod XAP-08V-1
CN2	JST cod XAP-04V-1
CN3	JST cod XAP-10V-1
CN4	JST cod XAP-06V-1
CN5	Molex cod. 51004-0500
CN8	Molex cod. 35156-0400

Cables section

Function	Cable	
	Minimum	Maximum
Power supply	0.5 mm ² (AWG20)	1.5 mm ² (AWG15)
Motor output	0.5 mm ² (AWG20)	1.5 mm ² (AWG15)
Digital and analog inputs	0.14 mm ² (AWG25)	0.5 mm ² (AWG20)
Digital output	0.14 mm ² (AWG25)	0.5 mm ² (AWG20)
Communication interface	0.25 mm ² (AWG23)	0.5 mm ² (AWG20)
Feedback interface	0.05 mm ² (AWG30)	0.2 mm ² (AWG24)

Verify the installation

- Check all connections : Power supply, stepper motor and inputs/outputs.
- Make sure that all settings right for the application.
- Make shure the power supply is suitable for the drive.
- If possible, remove the load from the motor shaft to avoid wrong movements cause damage.
- Enable the current to the motor and verify the applied torque.
- Execute a movement of some steps and verify if the rotation direction is the desired one.
- Disconnect the power supply, connect the load on the motor and check the full functionality.

Analysis of malfunctions



When one of the following situations occur, the drive doesn't function correctly and it is reported an error.

DEFECT	CAUSE	ACTION
The external fuse to the drive burns.	May be due to a wrong connection of the power supply.	Adjust the connection and recover the fuse. Use a fuse suitable for the application.
Over temperature protection.	May be due to a duty cycle.	Increase the air flux and if it is possible chose a motor with higher torque at same current value.
Over current protection.	May be due to a short circuit on the motor power stage.	Shut down the power supply and check if the motor is damaged.
Noisy motor movement with vibrations.	May be caused due to a state of resonance.	Increase the resolution of the step angle and/or change the motor velocity to avoid resonance area.
The motor produce torque but doesn't rotate	May be caused due to a wrong connection of the I/O's.	Check the connection of the I/O's

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