

## Installation instructions

 Refer to installation use and maintenance manual for more information.



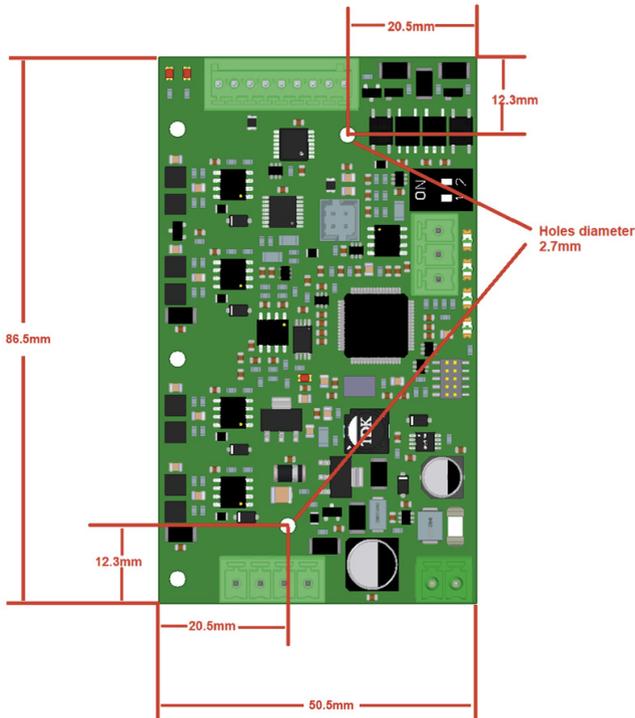
## Controller bipolar open frame drive for 2 phase step motor:

- DC Supply: 24Vdc (nominal range 19-30 Vdc)
- Phase current: up to 3ARMS (4.2 Apk)
- Chopper frequency: ultrasonic 40 kHz
- Stepless Control Technology (65536 position per turn)
- Protections: over-current, over-temperature, short circuit phase-phase motor and phase-ground
- Modbus communication interfaces (not isolated)
- Service SCI interface for programming and real time debugging (not isolated)
- 3 digital inputs (opto-isolated)
- 1 digital output (opto-isolated)
- 1 analog input (not isolated)
- Dimensions: 86.5 x 50.5 (without connectors)
- Working temperature 5°C + 40°C; Storage temperature -25°C + 55°C
- Humidity: 5% + 85% not condensing

**TITANIO**  
VECTOR · STEPPER · DRIVES

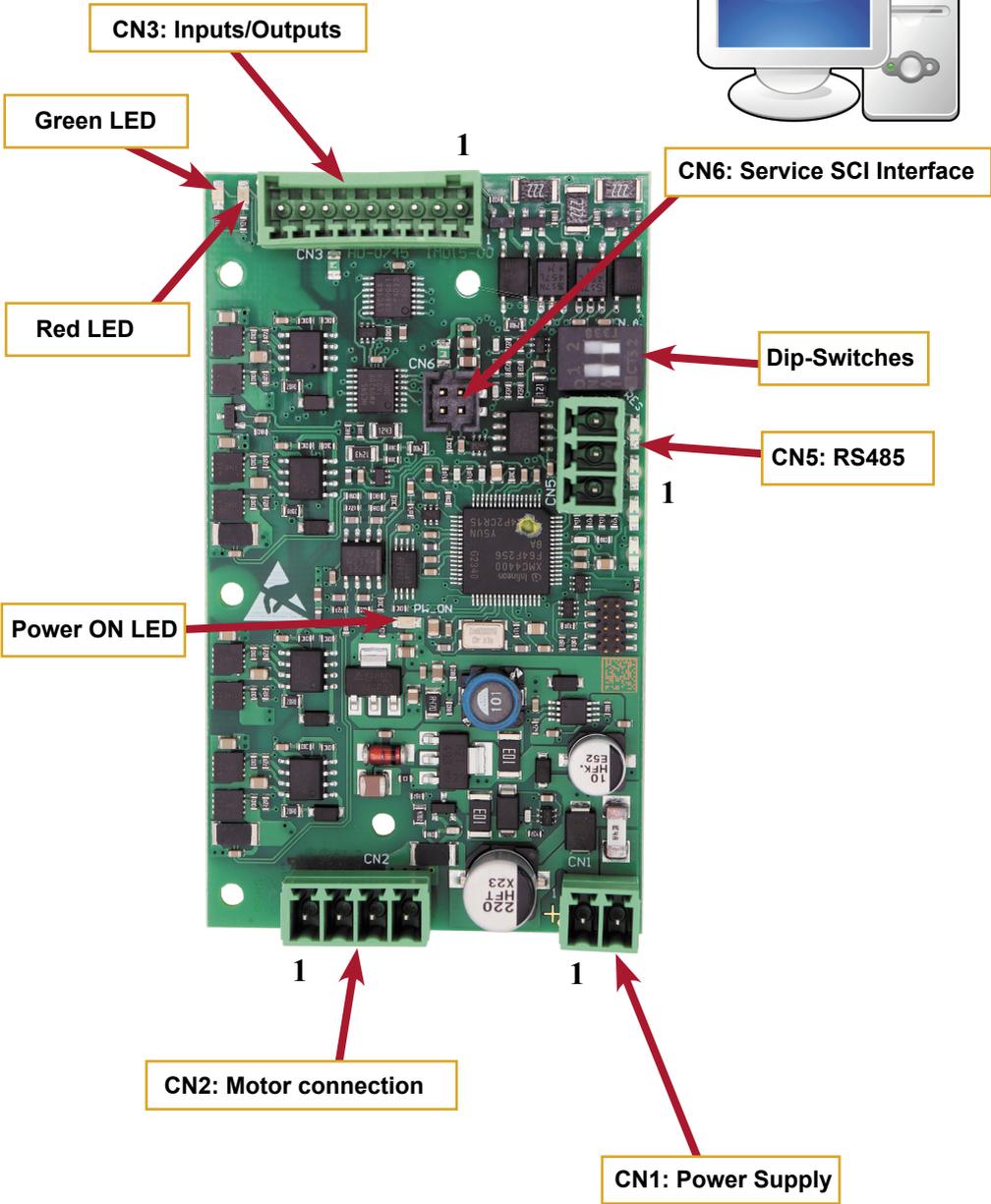
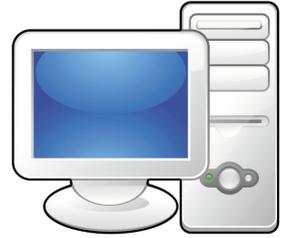


## Mechanical data



# System connections

Connectors: position, function and pinout.



# System connections

## CN 1: 24 Vdc power supply

**Mating connector: Phoenix 1803578**

CN1.1	PGND	PWR_IN	Negative power supply input
CN1.2	V+	PWR_IN	Positive power supply input 24 Vdc



## CN2: Motor connection

**Mating connector: Phoenix 1803594**

CN2.1	A	PWR_OUT	Motor output phase A
CN2.2	A/	PWR_OUT	Motor output phase A/
CN2.3	B	PWR_OUT	Motor output phase B
CN2.4	B/	PWR_OUT	Motor output phase B/



## CN3: Inputs & Outputs:

**Mating connector: Phoenix 1881396**

CN3.1	COM_IN	Negative logic supply
CN3.2	IN1	PNP 24V digital input IN1
CN3.3	IN2	PNP 24V digital input IN2
CN3.4	IN3	PNP 24V digital input IN3
CN3.5	V_OUT	Positive supply 24Vdc for digital output
CN3.6	OUT0	PNP 24V digital output OUT0
CN3.7	VPOT	Positive output supply 5Vdc for potentiometer
CN3.8	IN_AN0	Analog input 0
CN3.9	AGND	Negative output supply for potentiometer



## CN5: Modbus RS485

**Mating connector: Phoenix 1803581**

CN5.1	DATA +	RS485 signal high
CN5.2	DATA -	RS485 signal low
CN5.3	GND	Negative reference for RS485



## CN6: Service SCI Interface

**⚠ This connection is only possible with hardware and software provided by Ever. Kit code : SW4\_SERV00-EE**



**ATTENTION !!!**

Correct insertion direction if the CN6: TAB UP.

**TAB UP**



**Drive side**



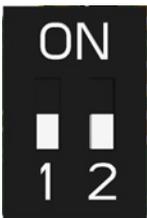
**PC side**

## LEDs

Power ON Led (Green).

Green Led and Red Led (see Software Manual for details)

## Dip-Switches and Jumper settings

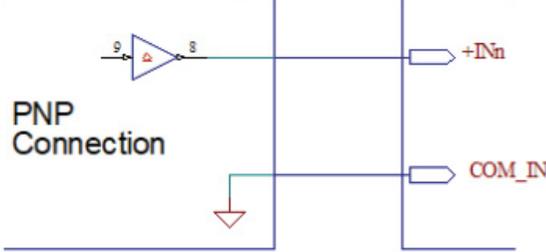


DIP-Switches	OFF	ON
SW1	120 ohm termination resistor on Modbus NOT inserted	120 ohm termination resistor on Modbus inserted
SW2	Reserved - Must remain in OFF position	

## Digital inputs connection

**i** 24V Single-ended PNP (opto-isolated).

### External Control Logic

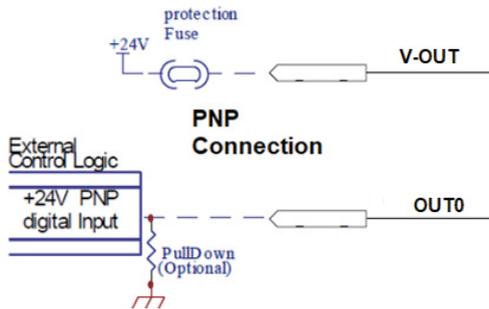


IN1				
Characteristics	MIN.	TYP.	MAX.	Unit
Supply voltage	19	24	30	Vdc
Inputs frequency	--	--	10	kHz
Threshold switching voltage	--	9.5	---	Vdc
Current	7	10	13	mA

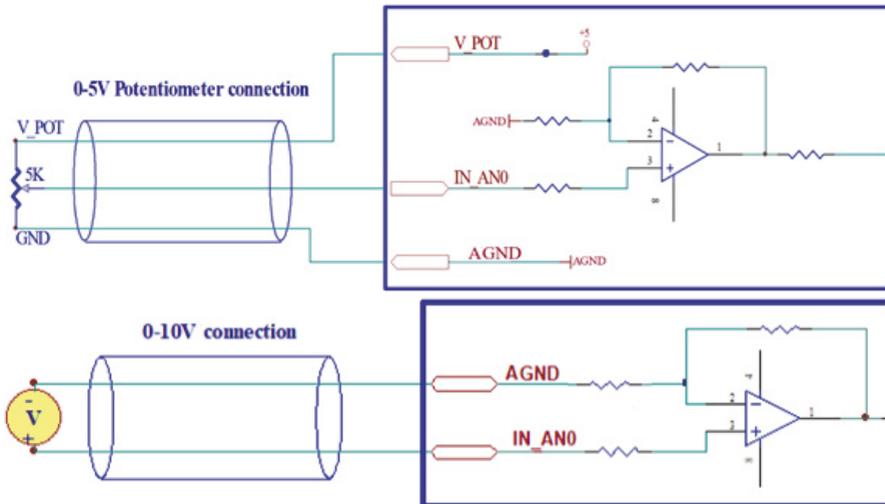
IN2 & IN3				
Characteristics	MIN.	TYP.	MAX.	Unit
Supply voltage	19	24	30	Vdc
Inputs frequency	--	--	200	kHz
Threshold switching voltage	--	9.5	---	Vdc
Current	7	10	13	mA

## Digital outputs connection

**i** PNP with  $V_{outMAX} = 24$  Vdc,  $I_{outMAX} = 100$  mA (opto-isolated), Frequency = 1 kHz



## Analog input 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.

## Mating connector kit

Connector	Description
CN1	Phoenix 1803578
CN2	Phoenix 1803594
CN3	Phoenix 1881396
CN5	Phoenix 1803581

## Section of the cables

Function	Cable	
	Minimum	Maximum
Power supply	0.2 mm <sup>2</sup> (AWG22)	2.0 mm <sup>2</sup> (AWG14)
Motor outputs	0.2 mm <sup>2</sup> (AWG22)	2.0 mm <sup>2</sup> (AWG14)
Inputs and Outputs	0.14 mm <sup>2</sup> (AWG26)	0.50 mm <sup>2</sup> (AWG20)
Communication interfaces	0.14 mm <sup>2</sup> (AWG26)	0.50 mm <sup>2</sup> (AWG20)

## Verify the installation

- Check all connection : supply and inputs/outputs.
- Make sure all settings right for the application.
- Make sure the power and logic supplies are suitable for the drive.
- If possible, remove the load from the motor shaft to avoid that wrong movements cause damage.
- Enable the current to the motor and verify the applied torque.
- Enable 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

## Check the detected fail fuction



*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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