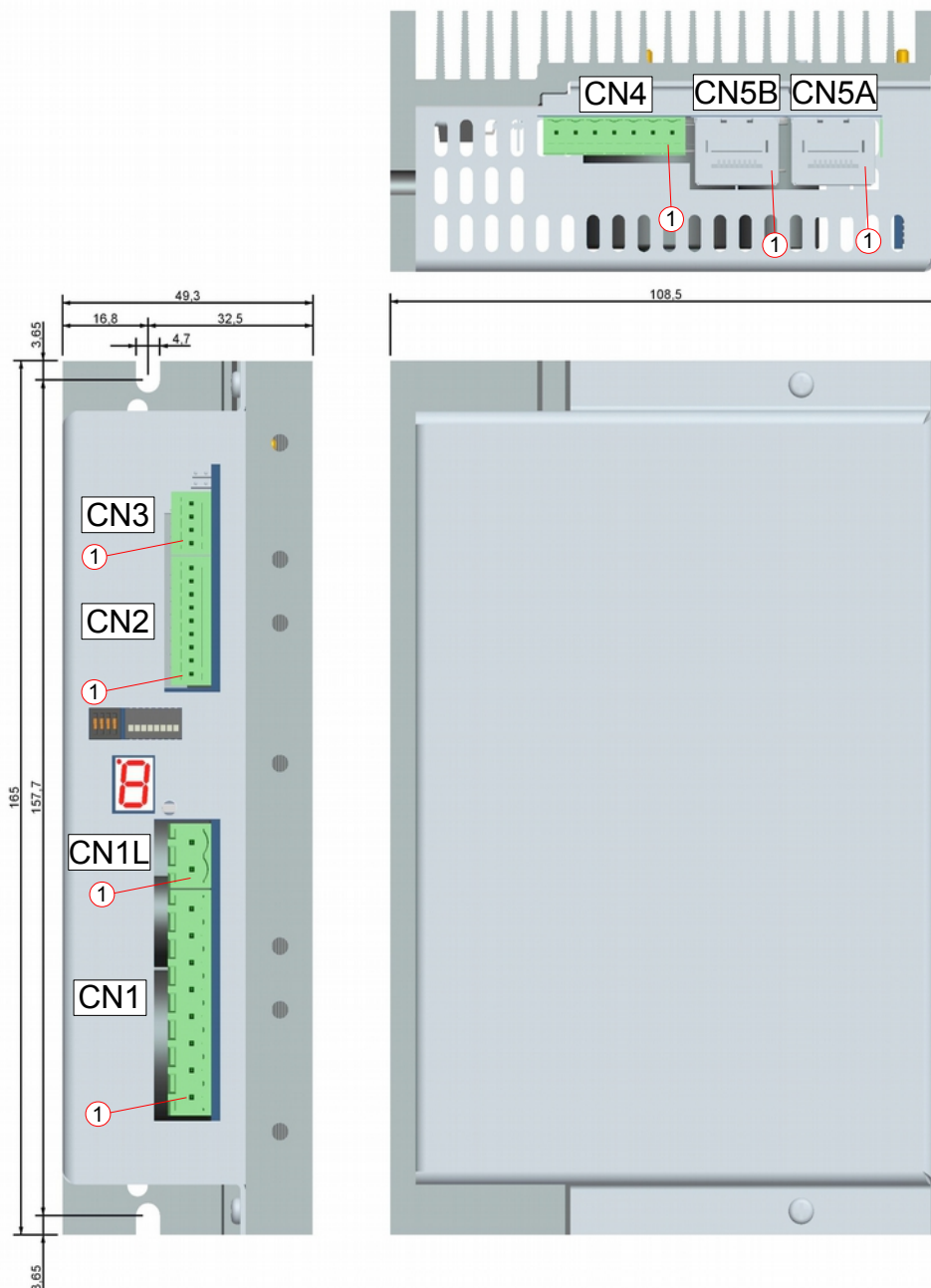


SW1A4085-Controller bipolar drive for 2 phase step motor :

- AC power Supply: 17 ÷ 100Vac;
- Phase current : up to 8.5 A_{RMS} (12.0 A_{PK});
- Chopper frequency : ultrasonic 33KHz;
- Step angle: from full step up to 1/128;
- Protections: over-current, over-temperature, short circuit phase-phase motor and phase-ground;
- digital inputs (opto-coupled);
- digital outputs (opto-coupled);
- Size and mass: 165 x 108 x 49 mm without connectors (L x D x H : refer to picture); weight : 700 gr ;
- IP protection: IP20;
- Working temperature 5°C ÷ 40°C ; Storage temperature -25°C ÷ 55°C ;
- Humidity : 5% ÷ 85% not condensing;



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

CN1 : Power Supply & Motor			
8 position, pitch 5.08mm., PCB header connector			
Pos	Name	Characteristics	
1	PE	EARTH Input	Environmental earthing
2	AC _{IN}	PWR Input	AC input power supply Motor.
3	AC _{IN}	PWR Input	AC input power supply Motor
4	AC _{IN}	PWR Input	AC input power supply Motor
5	A	PWR Output	Phase A motor
6	A/	PWR Output	Phase A/ motor
7	B	PWR Output	Phase B motor
8	B/	PWR Output	Phase B/ motor

CN1L : AC Input - Logic			
2 position, pitch 5.08mm., PCB header connector			
Pos	Name	Characteristics	
1	AC _{LOG}	PWR Input	AC power supply input Logics
2	AC _{LOG}	PWR Input	AC power supply input Logics

CN2 : Digital Inputs			
9 position, pitch 2.5mm., PCB header connector			
Pos	Name	Characteristics	
1	+B0_IN0	Digital Input	Positive terminal digital input B0_IN0
2	-B0_IN0	Digital Input	Negative terminal digital input B0_IN0
3	+B0_IN1	Digital Input	Positive terminal digital input B0_IN1
4	-B0_IN1	Digital Input	Negative terminal digital input B0_IN1
5	+B0_IN2	Digital Input	Positive terminal digital input B0_IN2
6	-B0_IN2	Digital Input	Negative terminal digital input B0_IN2
7	+B0_IN3	Digital Input	Positive terminal digital input B0_IN3
8	-B0_IN3	Digital Input	Negative terminal digital input B0_IN3
9	B0_COM_IN	PWR Input	Reference common inputs (for use at single-ended)

CN3 : Digital Outputs			
4 position, pitch 2.5mm., PCB header connector			
Pos	Name	Characteristics	
1	+24V	PWR Input	Positive power supply digital outputs.
2	VSS	PWR Input	Negative reference power supply digital outputs.
3	B0_OUT0	Digital Output	Open Emitter Output (Source Current) B0_OUT0
4	B0_OUT1	Digital Output	Open Emitter Output (Source Current) B0_OUT1

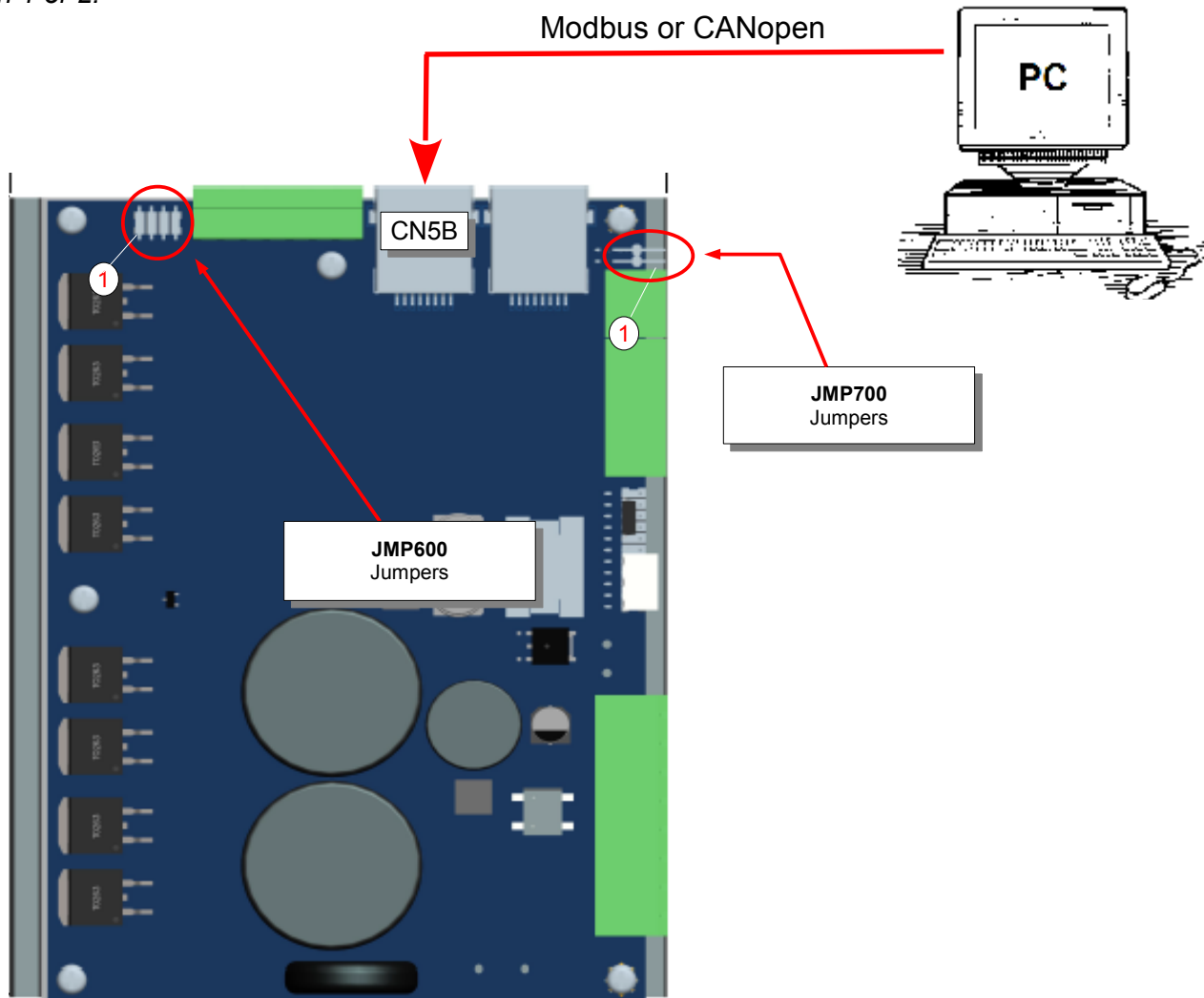
CN4 : Analog Inputs			
7 position, pitch 3.81mm., PCB header connector			
Pos	Name	Characteristics	
1	V_POT	PWR Output	Positive power supply output for potentiometers.
2	AGND	PWR Output	Negative reference output for potentiometers.
3	n.c.		Not connected
4	+IN_AN0	Analog Input	Positive terminal analog input IN_AN_0
5	-IN_AN0	Analog Input	Negative terminal analog input IN_AN_0
6	+IN_AN1	Analog Input	Positive terminal analog input IN_AN_1
7	-IN_AN1	Analog Input	Negative terminal analog input IN_AN_1

CN5A: versions RS232/RS485			
RJ45 , 8 position, PCB shielded header connector			
Pos	Name	Characteristics	
1	+RX	Digital Input	Non-inverting input RS485 receiver
2	-RX	Digital Input	Inverting input RS485 receiver
3	N.C.		Not connected
4	N.C.		Not connected
5	0V_A	PWR Output	Reference (ground) communication interface.
6	N.C.		Not connected
7	+TX	Digital Output	Non-inverting output transmitter RS485
8	-TX	Digital Output	Inverting output transmitter RS485

CN5B: versions RS232/RS485			
RJ45 , 8 position, PCB shielded header connector			
Pos	Name	Characteristics	
1	+RX	Digital Input	Non-inverting input RS485 receiver
2	-RX	Digital Input	Inverting input RS485 receiver
3	RXD	Digital Input	Input RS232 receiver
4	DTR	Digital Output	Output Data Transmit Ready RS232
5	0V_A	PWR Output	Reference (ground) communication interface.
6	TXD	Digital Output	Output transmitter RS232
7	+TX	Digital Output	Non-inverting output transmitter RS485
8	-TX	Digital Output	Inverting output transmitter RS485

CN5A=CN5B : CanBus version			
RJ45 , 8 position, PCB shielded header connector			
Pos	Name	Characteristics	
1	CAN_H	Digital I/O	Bus Line Dominant HIGH
2	CAN_L	Digital I/O	Bus Line Dominant LOW
3	CAN_GND	PWR Output	Signal Ground
4	n.c.		Not connected
5	n.c.		Not connected
6	n.c.		Not connected
7	CAN_GND_O	PWR Output	Optional Signal Ground
8	n.c.		Not connected

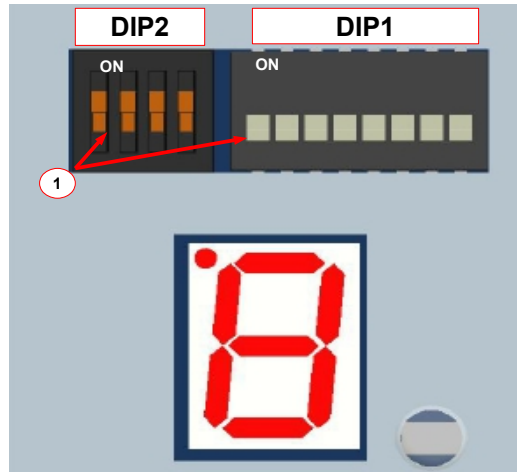
Attention: the jumper JMP600 must not be closed in position 1 and 2 or in position 3 and 4 at the same time.
 Attention: the jumper JMP700 with a RS485 Half-Duplex connection, insert only 1 jumper indifferently in position 1 or 2.



JMP600: analog inputs setting						
4 position, pitch 2.54mm., PCB header						
Pos	Analog Input	Characteristics		Factory Setting	Connections	
1	IN_AN_0	Differential ±10V	Jumper inserted		+IN_AN0	CN4.4
					-IN_AN0	CN4.5
2	IN_AN_0	Potentiometer	Jumper inserted	■	V_POT	CN4.1
					AGND	CN4.2
3	IN_AN_1	Differential ±10V	Jumper inserted		+IN_AN0	CN4.4
					+IN_AN1	CN4.6
4	IN_AN_1	Potentiometer	Jumper inserted	■	-IN_AN1	CN4.7
					V_POT	CN4.1
					AGND	CN4.2
					+IN_AN1	CN4.6

JMP700: insertion of termination resistors on communication interfaces			
2 position, pitch 2.54mm., PCB header			
Pos	Factory Setting	RS232/485 versions	CanBus versions
1	Open	120Ω resistance on transmission line RS485 not inserted	Not connected
2	Closed	120Ω resistance on transmission line RS485 inserted	Not connected
3	Open	120Ω resistance on transmission line RS485 not inserted	120Ω resistance on CanBus not inserted
4	Closed	120Ω resistance on transmission line RS485 inserted	120Ω resistance on CanBus inserted

Dip-switches & Display



Dip-switch allocation											
DIP2				DIP1							
U1	U0	ID6	ID5	ID4	ID3	ID2	ID1	ID0	BD2	BD1	BD0
1			4	1							8

Drive's Baud Rate selection				
BD2	BD1	BD0	Modbus	CANOpen
OFF	OFF	OFF	115200	1 M
OFF	OFF	ON	57600	500 K
OFF	ON	OFF	38400	250 K
OFF	ON	ON	19200	125 K
ON	OFF	OFF	9600	100 K
ON	OFF	ON	4800	50 K
ON	ON	OFF	2400	50 K
ON	ON	ON	1200	50 K

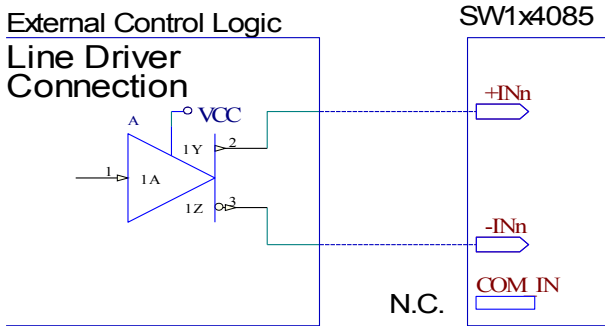
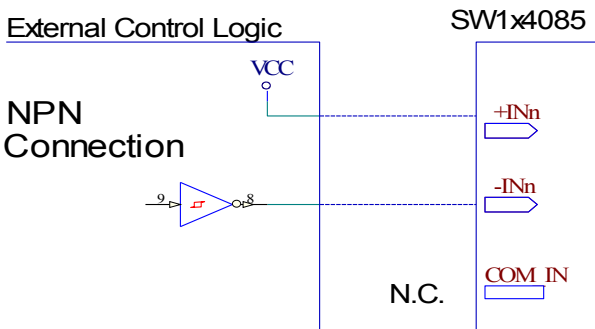
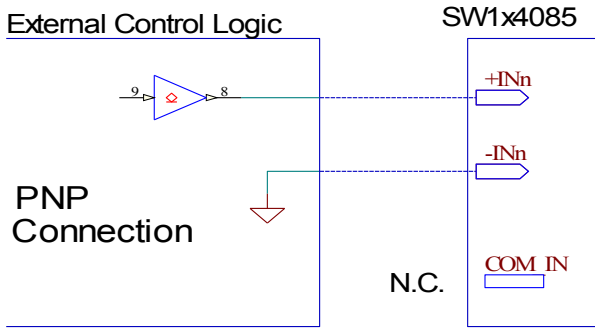
Drive's ID number selection							
ID6	ID5	ID4	ID3	ID2	ID1	ID0	Node Id #
OFF	OFF	OFF	OFF	OFF	OFF	OFF	Not allowed
OFF	OFF	OFF	OFF	OFF	OFF	ON	1
OFF	OFF	OFF	OFF	OFF	ON	OFF	2
OFF	OFF	OFF	OFF	OFF	ON	ON	3
OFF	OFF	OFF	OFF	ON	OFF	OFF	4
OFF	OFF	OFF	OFF	ON	OFF	ON	5
OFF	OFF	OFF	OFF	ON	ON	OFF	6
OFF	OFF	OFF	OFF	ON	ON	ON	7
OFF	OFF	OFF	ON	OFF	OFF	OFF	8
OFF	OFF	OFF	ON	OFF	OFF	ON	9
OFF	OFF	OFF	ON	OFF	ON	OFF	10
OFF	OFF	OFF	ON	OFF	ON	ON	11
OFF	OFF	OFF	ON	ON	OFF	OFF	12
OFF	OFF	OFF	ON	ON	ON	ON	13
OFF	OFF	OFF	ON	ON	ON	OFF	14
OFF	OFF	OFF	ON	ON	ON	ON	15
OFF	OFF	ON	OFF	OFF	OFF	OFF	16
OFF	OFF	ON	OFF	OFF	OFF	ON	17
OFF	OFF	ON	OFF	OFF	ON	OFF	18
OFF	OFF	ON	OFF	OFF	ON	ON	19
OFF	OFF	ON	OFF	ON	OFF	OFF	20
OFF	OFF	ON	OFF	ON	OFF	ON	21
OFF	OFF	ON	OFF	ON	ON	OFF	22
OFF	OFF	ON	OFF	ON	ON	ON	23
OFF	OFF	ON	ON	OFF	OFF	OFF	24
XX	XX	XX	XX	XX	XX	XX
ON	ON	ON	ON	ON	ON	ON	127

Operational statuses and their signals	
	Missing Operating System: no software application stored on drive
	Firmware update: Updating of new software in progress.
	Initialization: the drive executes the start-up procedure (a few seconds after the start-up procedure has begun).
	Correct functioning
	Voltage of the DC bus near the maximal value
	Drive temperature is near to the maximum value
	Warning: EEPROM near Write Overrun
	Warning: EEPROM near End of Life
	Enable OFF, current zero
	Error: expired eePLC software trial
	Security intervention of watchdog;
	Internal Software Error;
	Missing calibration values;
	Management EEPROM;
	Error: eePLC application error
	Error: EEPROM Write Overrun
	Error: Feature Unavailable
	Open motor phases
	over/under voltage (1);
	over current on the motor output;
	over temperature of the drive;

Digital inputs connection

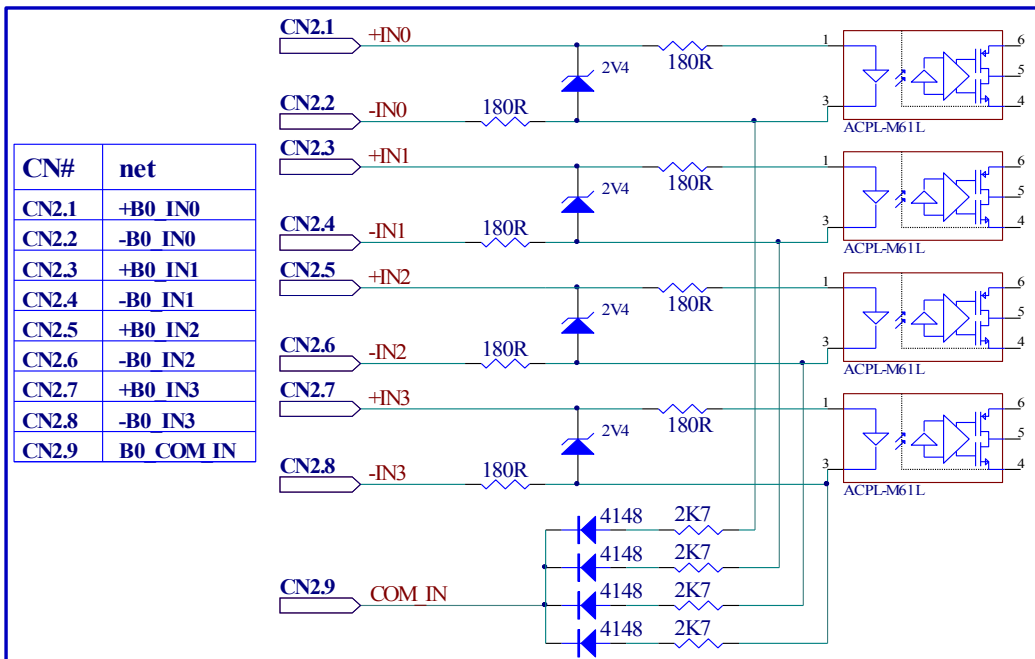
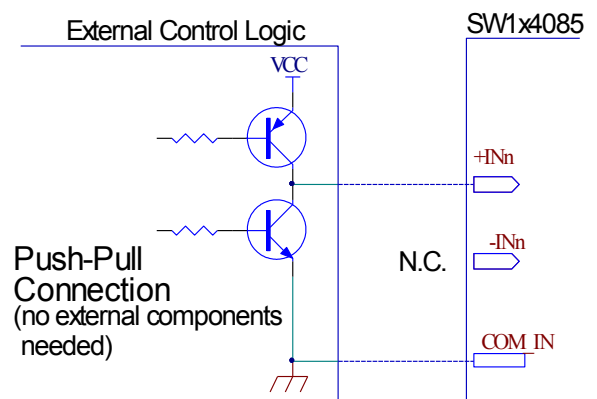
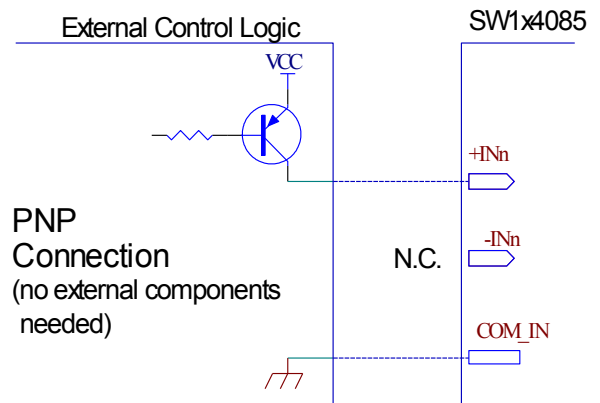
Differential Connection

2 - 5V INPUT



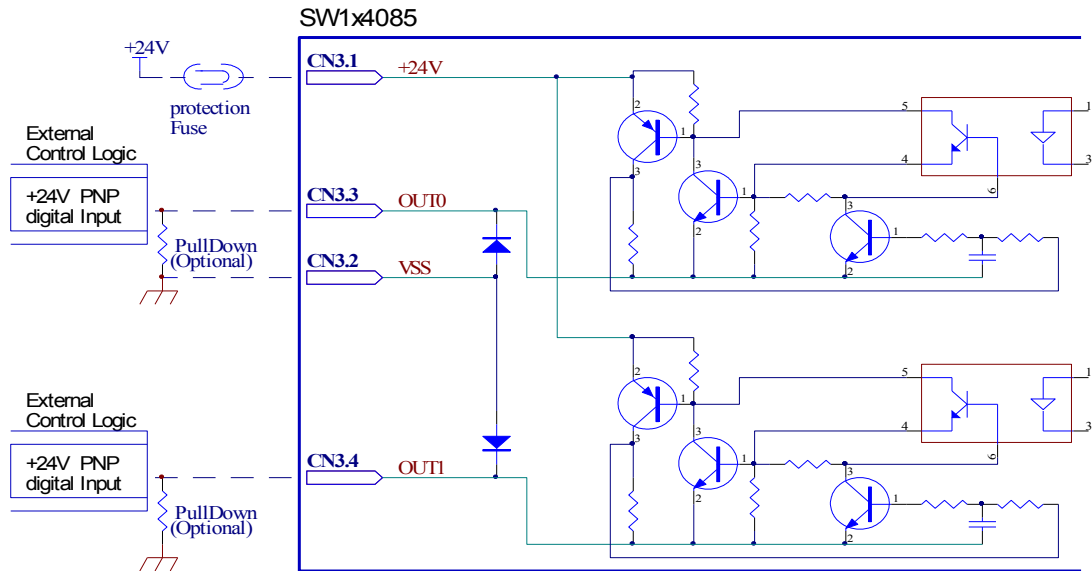
Single-ended Connection

11-24V INPUTS



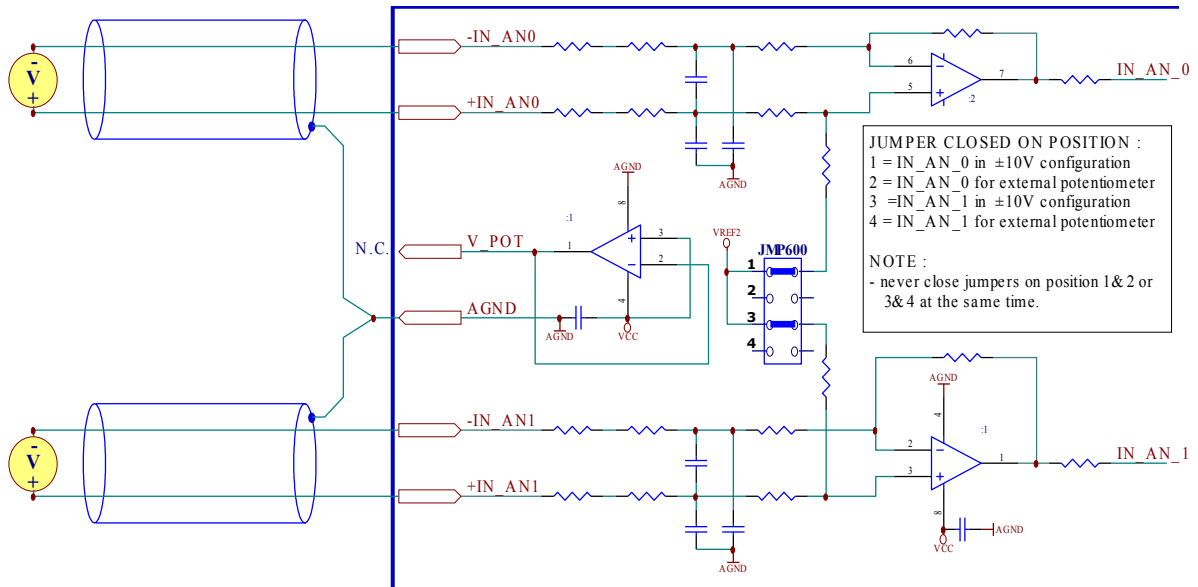
Digital output connection

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

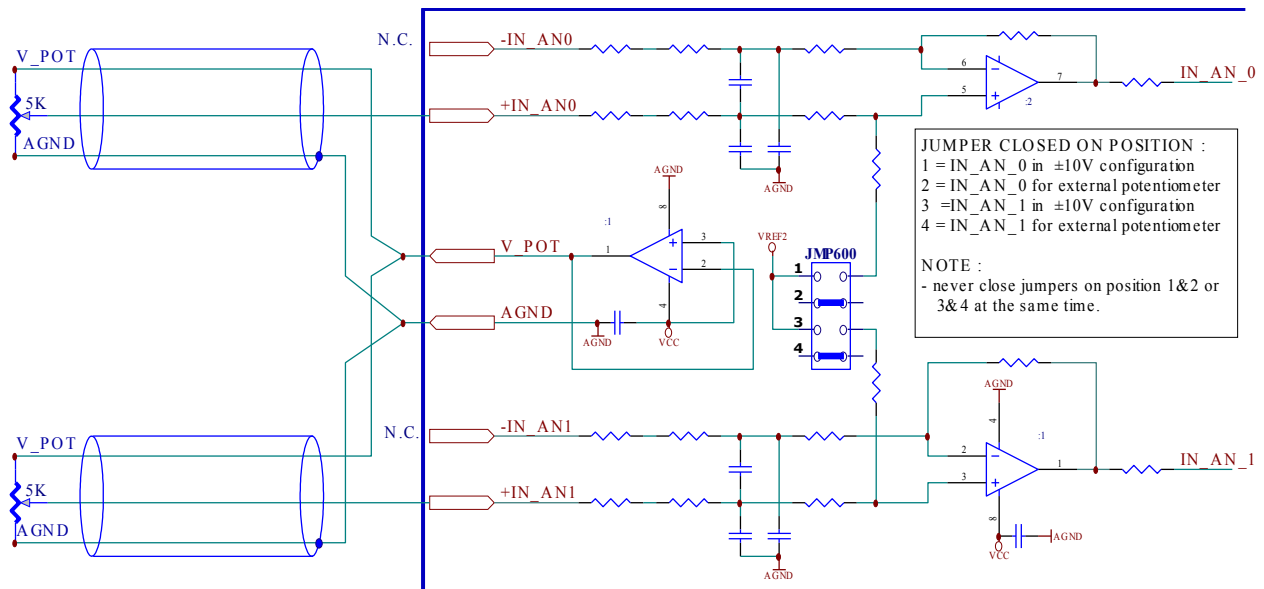


Analog input connection

Analog input +/-10Vdc CEI EN 61131-2 type, not isolated.



Analog input for potentiometer connection.



Mating cable kit

CN1	8 position, pitch 5.08mm., plug connector	PHOENIX CONTACT p# MSTB 2,5/8-ST-5,08	order cod. 1757077
CN1L	2 position, pitch 5.08mm., plug connector	PHOENIX CONTACT p# MSTB 2,5/2-ST-5,08	order cod. 1757019
CN2	9 position, pitch 2.5mm., plug connector	PHOENIX CONTACT p# FK MC0,5/9-ST-2,5	order cod. 1881396
CN3	4 position, pitch 2.5mm., plug connector	PHOENIX CONTACT p# FK MC0,5/4-ST-2,5	order cod. 1881341
CN4	7 position, pitch 3.81mm., plug connector	PHOENIX CONTACT p# MC1,5/7-ST-3,81	order cod. 1803620
CN5A/B	RJ45 ,8 position, plug connector	MOLEX p# FCC 68 compliants and equivalents	order cod. 44915-0011

Section of the cables

Power supply	Min 0.5mm ² (AWG20)	Communication interface	Min 0.25mm ² (AWG23)
Logic supply	Max 2.5mm ² (AWG12)		CANbus CIA-CANOpen
Motor output	Min 0.5mm ² (AWG20)	Digital input	Min 0.14mm ² (AWG25)
	Max 2.5mm ² (AWG12)	Digital output	Max 0.5mm ² (AWG20)
		Analog Input	Max 1.5mm ² (AWG16)

Verify the installation

- Check all connection : power supply and inputs/outputs.
- Make sure all settings right for the application.
- Make sure the power supply is 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 function



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