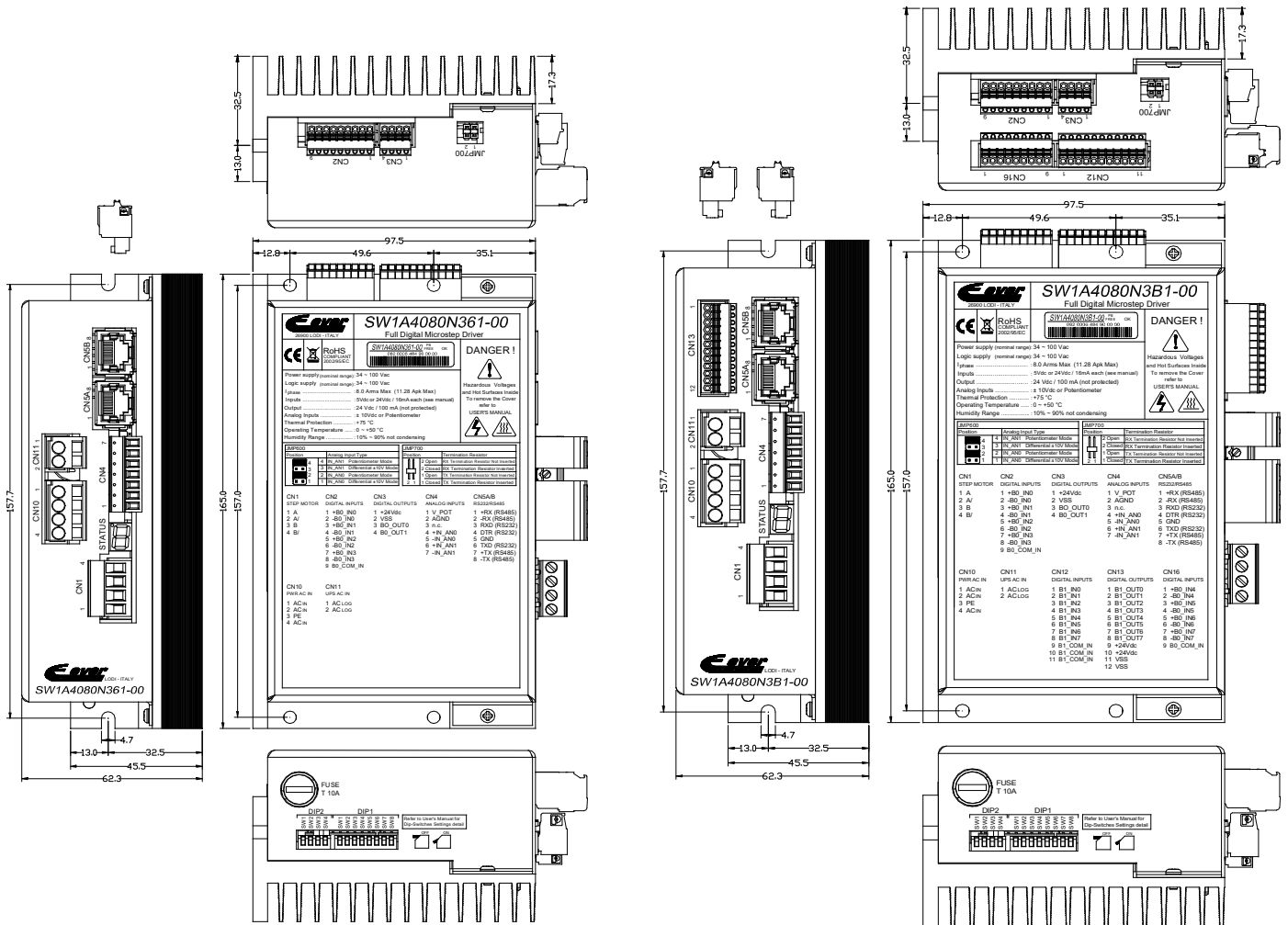


SW1A4080-Controller bipolar drive for 2 phase step motor :

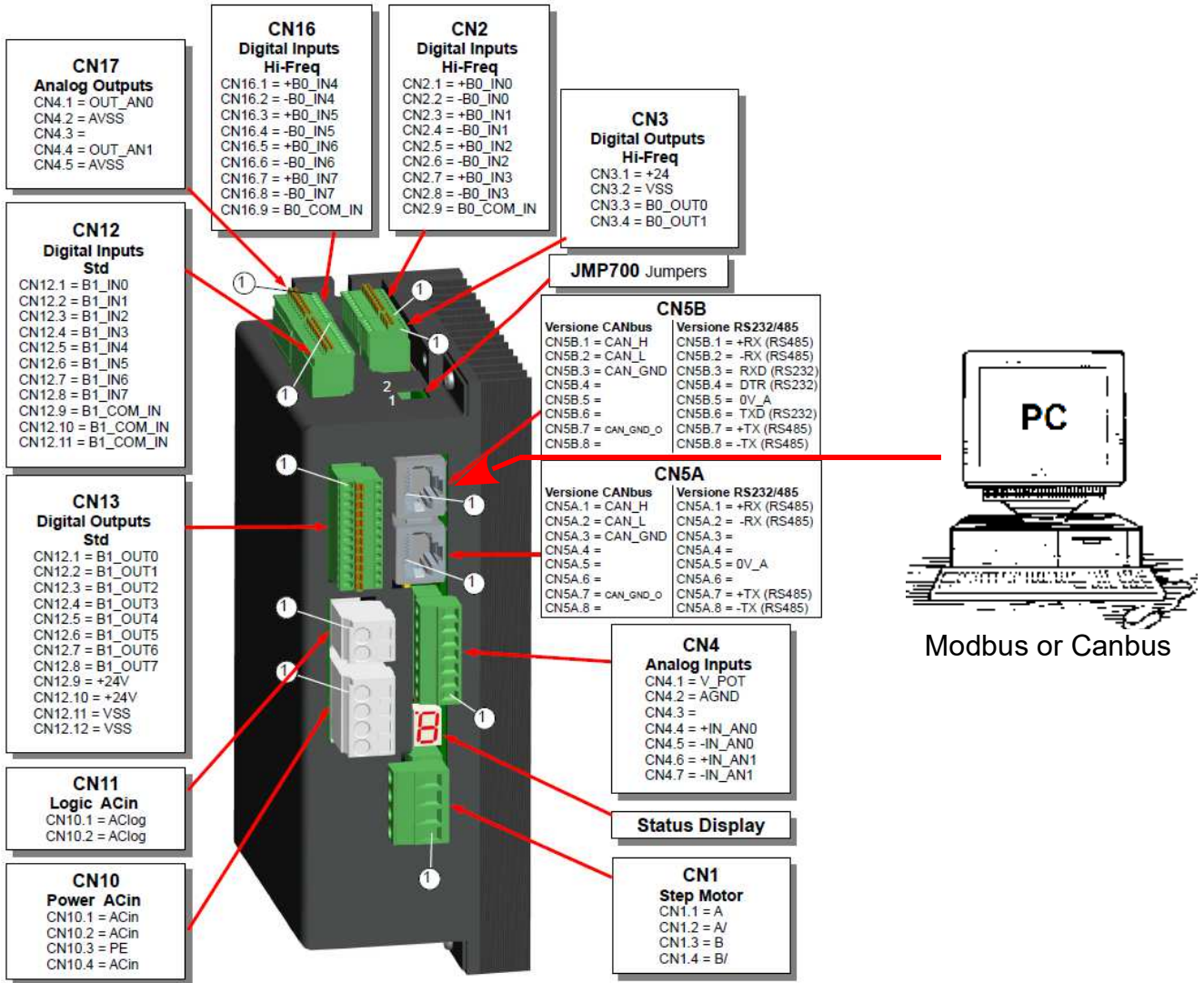
- AC Power Supply: 34 ÷ 100Vac;
- AC Logic Supply: 17 ÷ 100Vac;
- Phase current : up to 8 A_{RMS} (11,0 A_{PK});
- Chopper frequency : ultrasonic 33KHz;
- Step angle: from full step up to 1/128;
- Protections: over-current, over-temperature, short circuit phase-phase motor and phase-ground;
- digital inputs (opto-coupled);
- digital outputs (opto-coupled);
- analog inputs;
- analog outputs (opto-coupled);
- Size and mass: 165(mm)x97,5x62,3mm without connectors (L x D x H : refer to picture); weight : 900 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> link.

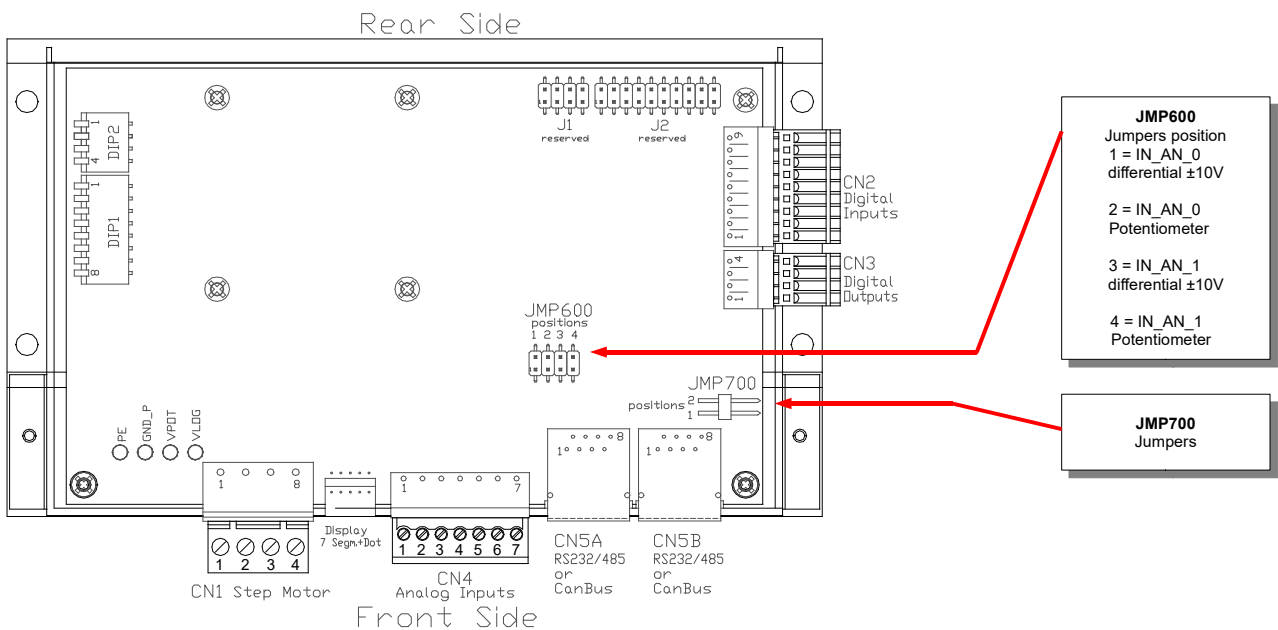
System connectors and jumpers

Connectors: position and function.



Jumpers: position and function.

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.



CN1 : Step Motor			
4 position, pitch 5.08mm., PCB header connector			
Pos	Name	Characteristics	
1	A	PWR Output	Phase A motor
2	A/	PWR Output	Phase A/ motor
3	B	PWR Output	Phase B motor
4	B/	PWR Output	Phase B/ motor

CN2 : Hi-Freq 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_I N	PWR Input	Reference common inputs (for use at 24V _{DC})

CN3 : Hi-Freq 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 - CN5B : RS232/RS485 version				
RJ45 , 8 position, PCB shielded header connector				
Pos	CN5A (IN) RS485	CN5B (OUT) RS485 + RS232	Characteristics	
1	+RX	+RX	Digital Input	Non-inverting input RS485 receiver
2	-RX	-RX	Digital Input	Inverting input RS485 receiver
3	n.c.	RXD	Digital Input	Input RS232 receiver
4	n.c.	DTR	Digital Output	Output Data Transmit Ready RS232
5	0V_A	0V_A	PWR Output	Reference (mass) communication interface
6	n.c.	TXD	Digital Output	Output RS232 transmitter
7	+TX	+TX	Digital Output	Non-inverting output RS485 transmitter
8	-TX	-TX	Digital Output	Inverting output RS485 transmitter

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

CN10 : AC Input - Power			
4 position, pitch 5mm, PCB header connector			
Pos	Name	Characteristics	
1	AC _{IN}	PWR Input	AC input power supply Motor.
2	AC _{IN}	PWR Input	AC input power supply Motor
3	PE	EARTH Input	Environmental Protective Earthing
4	AC _{IN}	PWR Input	AC power supply input Motor

CN11 : AC Input - Logic			
2 position, pitch 5mm, 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.

CN12 : Std Digital Inputs			
11 position, pitch 2.5mm., PCB header connector			
Pos	Name	Characteristics	
1	B1_IN0	Digital Input	Terminal digital input B1_IN0
2	B1_IN1	Digital Input	Terminal digital input B1_IN1
3	B1_IN2	Digital Input	Terminal digital input B1_IN2
4	B1_IN3	Digital Input	Terminal digital input B1_IN3
5	B1_IN4	Digital Input	Terminal digital input B1_IN4
6	B1_IN5	Digital Input	Terminal digital input B1_IN5
7	B1_IN6	Digital Input	Terminal digital input B1_IN6
8	B1_IN7	Digital Input	Terminal digital input B1_IN7
9	B1_COM_IN	PWR Input	Reference common inputs B1_INn
10	B1_COM_IN	PWR Input	Reference common inputs B1_INn
11	B1_COM_IN	PWR Input	Reference common inputs B1_INn

CN13 : Std Digital Outputs			
12 position, pitch 2.5mm., PCB header connector			
Pos	Name	Characteristics	
1	B1_OUT0	Digital Output	Terminal digital outputs B1_OUT0
2	B1_OUT1	Digital Output	Terminal digital outputs B1_OUT1
3	B1_OUT2	Digital Output	Terminal digital outputs B1_OUT2
4	B1_OUT3	Digital Output	Terminal digital outputs B1_OUT3
5	B1_OUT4	Digital Output	Terminal digital outputs B1_OUT4
6	B1_OUT5	Digital Output	Terminal digital outputs B1_OUT5
7	B1_OUT6	Digital Output	Terminal digital outputs B1_OUT6
8	B1_OUT7	Digital Output	Terminal digital outputs B1_OUT7
9	+24V	PWR Input	Positive power supply digital outputs
10	+24V	PWR Input	Positive power supply digital outputs
11	VSS	PWR Input	Negative reference power supply
12	VSS	PWR Input	Negative reference power supply

CN16 : Hi-Freq Digital Inputs			
9 position, pitch 2.5mm., PCB header connector			
Pos	Name	Characteristics	
1	+B0_IN4	Digital Input	Positive terminal digital input B0_IN4
2	-B0_IN4	Digital Input	Negative terminal digital input B0_IN4
3	+B0_IN5	Digital Input	Positive terminal digital input B0_IN5
4	-B0_IN5	Digital Input	Negative terminal digital input B0_IN5
5	+B0_IN6	Digital Input	Positive terminal digital input B0_IN6
6	-B0_IN6	Digital Input	Negative terminal digital input B0_IN6
7	+B0_IN7	Digital Input	Positive terminal digital input B0_IN7
8	-B0_IN7	Digital Input	Negative terminal digital input B0_IN7
9	B0_COM_IN	PWR Input	Reference common inputs (for use at 24V _{DC})

CN17 : Analog Outputs			
5 position, pitch 2.5mm., PCB header connector			
Pos	Name	Characteristics	
1	OUT_AN0	Analog Output	Positive terminal analog output OUT_AN0
2	AVSS	PWR Output	Negative output reference for analog outputs
3	n.c.		Not connected
4	OUT_AN1	Analog Output	Positive terminal analog output OUT_AN1
5	AVSS	PWR Output	Negative output reference for analog outputs

JMP600: analog inputs setting				
4 position, pitch 2.54mm., PCB header				
Pos	Analog Input	Characteristics		Factory Setting
1	IN_AN_0	Differential ±10V	Jumper inserted	
2		Potentiometer	Jumper inserted	■
3	IN_AN_1	Differential ±10V	Jumper inserted	
4		Potentiometer	Jumper inserted	■

JMP700: insertion of termination resistor on communication interfaces			
2 position, pitch 2.54mm., PCB header			
Pos	Factory Setting	RS232/485 versions	CanBus versions
1	Jumper NOT inserter	120Ω resistance on transmission line RS485 not inserted	Not connected
	■ Jumper inserter	120Ω resistance on transmission line RS485 inserted	Not connected
2	Jumper NOT inserter	120Ω resistance on transmission line RS485 not inserted	120Ω resistance on CanBus non inserted
	■ Jumper inserter	120Ω resistance on transmission line RS485 inserted	120Ω resistance on CanBus inserted

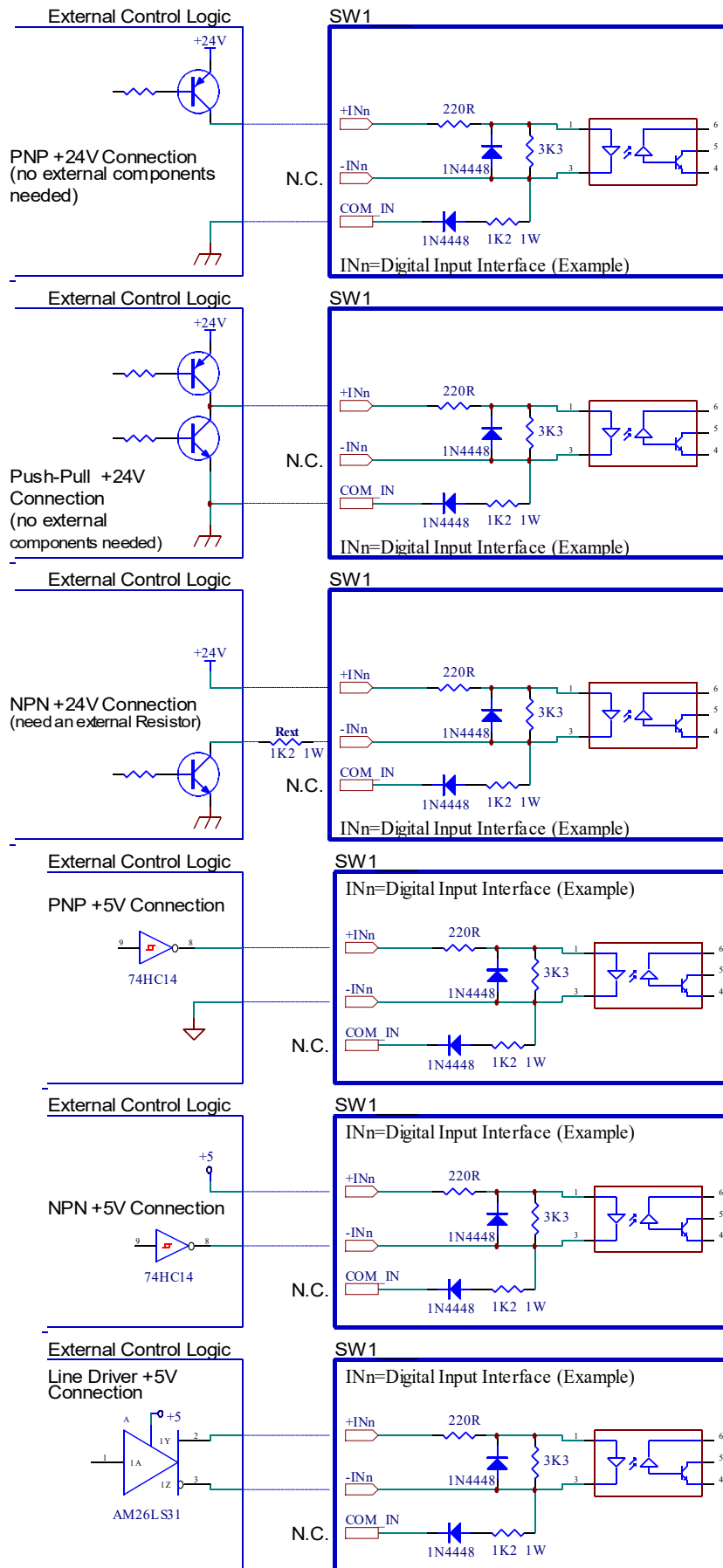
Dip-switch allocation											
DIP2				DIP1							
U1	U0	ID6	ID5	ID4	ID3	ID2	ID1	ID0	BD2	BD1	BD0
1			4	1							8

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

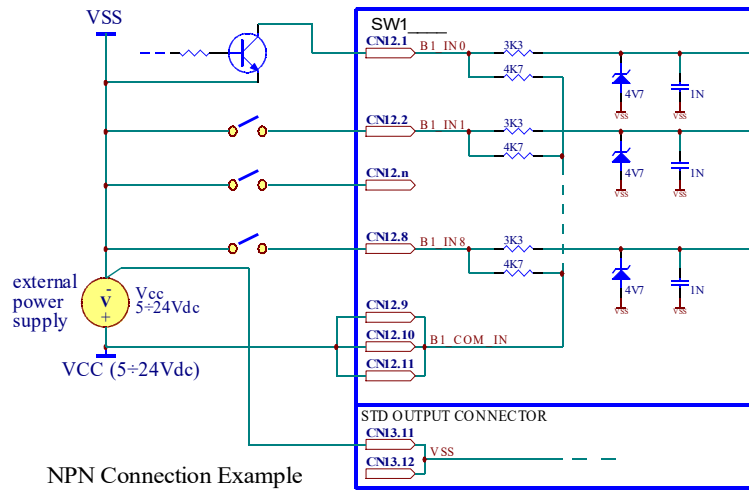
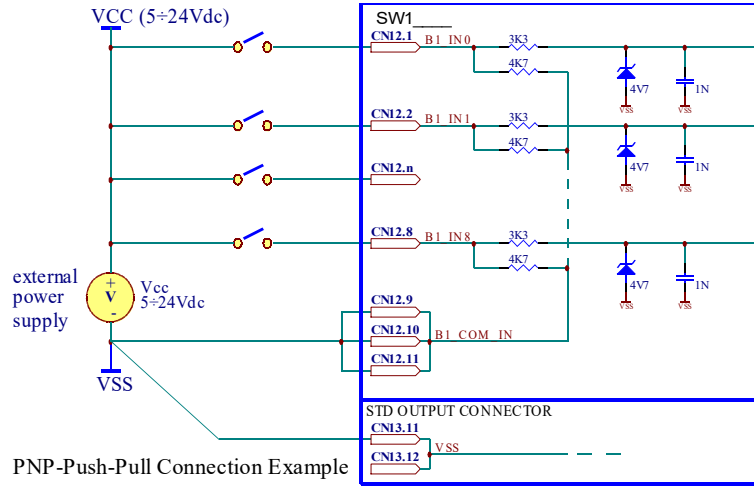
Drive's ID number selection							
ID6	ID5	ID4	ID3	ID2	ID1	ID0	Node Id #
OFF	OFF	OFF	OFF	OFF	OFF	OFF	Not allowed
OFF	OFF	OFF	OFF	OFF	OFF	ON	1
OFF	OFF	OFF	OFF	OFF	ON	OFF	2
OFF	OFF	OFF	OFF	OFF	ON	ON	3
OFF	OFF	OFF	OFF	ON	OFF	OFF	4
OFF	OFF	OFF	OFF	ON	OFF	ON	5
OFF	OFF	OFF	OFF	ON	ON	OFF	6
OFF	OFF	OFF	OFF	ON	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	OFF	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	
·U·	Missing Operating System: no software application stored on drive
·U·	Firmware update: Updating of new software in progress.
·U·	Initialization: the drive executes the start-up procedure (a few seconds after the start-up procedure has begun).
·S·	Correct functioning
·S,+·	Voltage of the DC bus near the maximal value
·S,+·3·	Drive temperature is near to the maximum value
·S,+·2·	Warning: EEPROM near Write Overrun
·S,+·8·	Warning: EEPROM near End of Life
·S· flashing	Enable OFF, current zero
·E,+·3·	Error: expired eePLC software trial
·E,+·0·	Security intervention of watchdog;
·E,+·1·	Internal Software Error;
·E,+·2·	Missing calibration values;
·E,+·4·	Management EEPROM;
·E,+·6·	Error: eePLC application error
·E,+·7·	Error: EEPROM Write Overrun
·E,+·U·	Error: Feature Unavailable
·P,+·0·	Open motor phases
·P,+·1·	over/under voltage (1);
·P,+·2·	over current on the motor output;
·P,+·3·	over temperature of the drive;

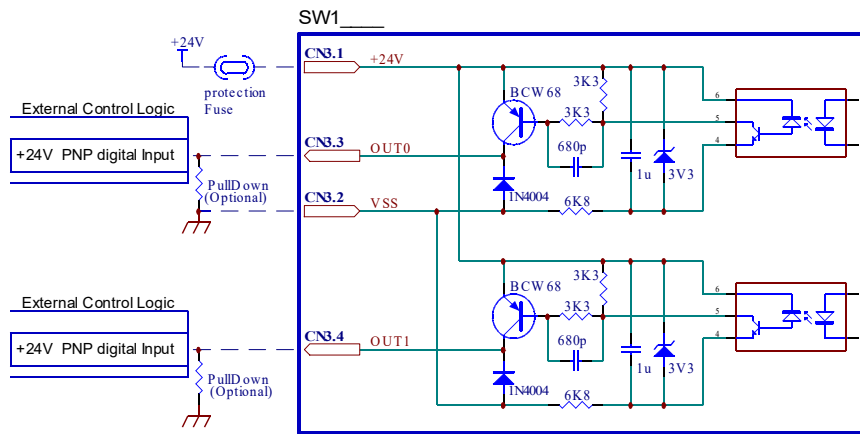
High-Freq Digital input connection: High-Freq Digital inputs.



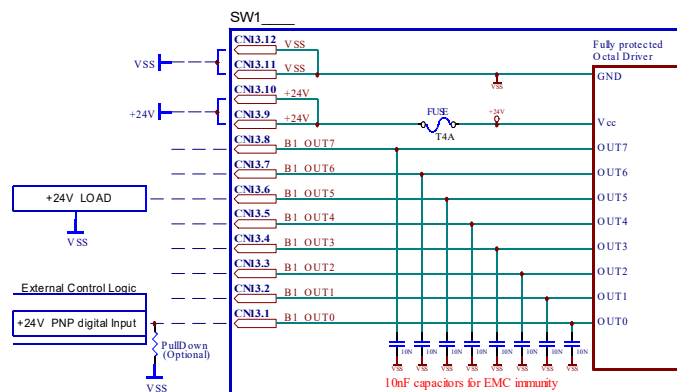
Std Digital inputs connection: Std Digital inputs 24Vdc



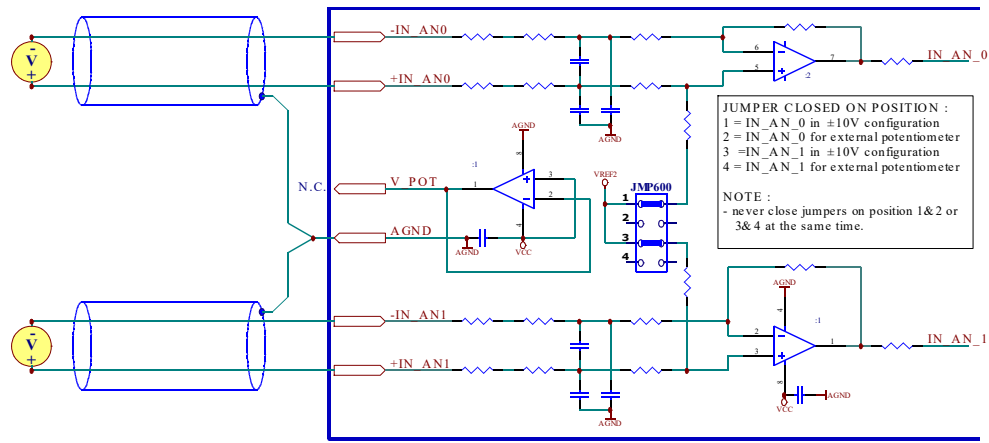
High-Freq Digital output connection : Digital outputs $V_{OUTmax}=24Vdc$, $I_{OUTmax}=100mA$



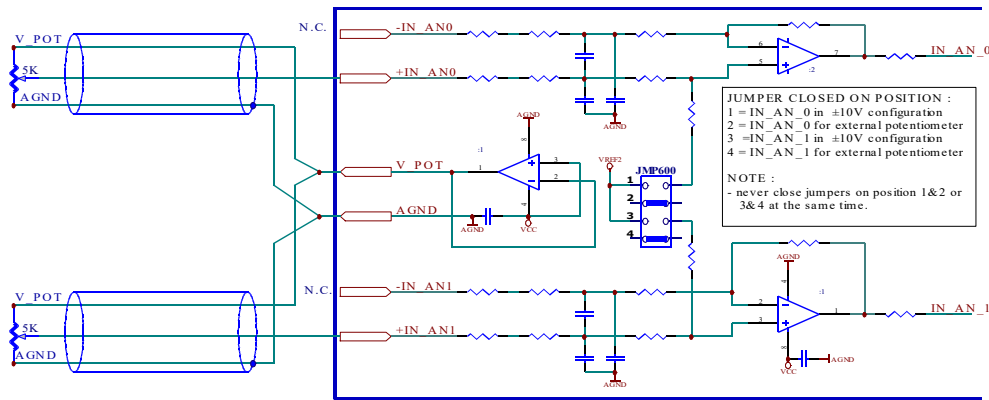
Std Digital output connection : Digital outputs $V_{OUTmax}=24Vdc$, $I_{OUTmax}=100mA$



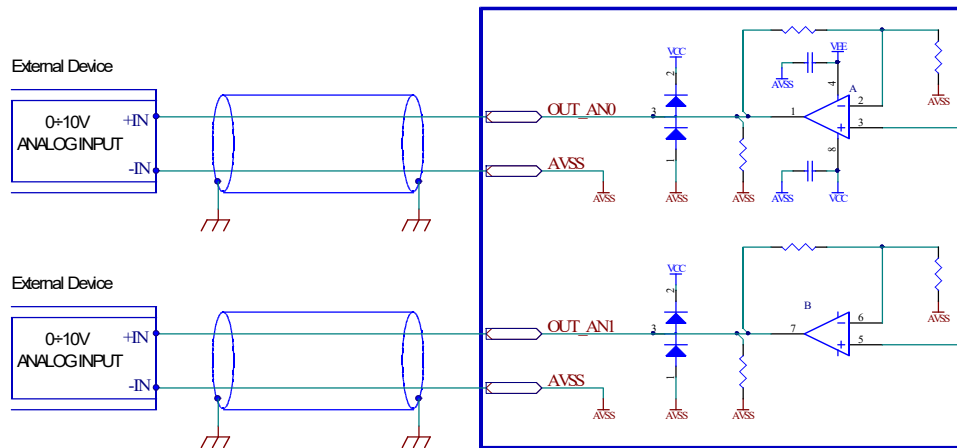
Analog input connection : Analog input +/-10Vdc CEI EN 61131-2 type, not isolated.



Analog input connection : Analog input for potentiometer connection.



Analog output connection : Analog output 0-10Vdc optically isolated.



Mating cable kit

CN1	4 position, pitch 5.08mm., plug connector	PHOENIX CONTACT p# MSTB 2,5/4-ST-5,08	order cod. 1757035
CN2/CN16	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
CN10	4 position, pitch 5mm., plug connector	WAGO - Cage Clamp series	order cod. 721-104/026-045
CN11	2 position, pitch 5mm., plug connector	WAGO - Cage Clamp series	order cod. 721-102/026-047
CN12	11 position, pitch 2.5mm., plug connector	PHOENIX CONTACT p# FK MC0,5/11-ST-2,5	order cod. 1881419
CN13	12 position, pitch 2.5mm., plug connector	PHOENIX CONTACT p# FK MC0,5/12-ST-2,5	order cod. 1881422
CN17	5 position, pitch 2.5mm., plug connector	PHOENIX CONTACT p# FK MC0,5/5-ST-2,5	order cod. 1881354

Section of the cables

Power supply Min 0.5mm² (AWG20)
 Max 2.5mm² (AWG12)

Motor output Min 0.5mm² (AWG20)
 Max 2.5mm² (AWG12)

Communication interface Min 0.25mm² (AWG23)
 CANbus CIA-CANOpen

In/Out Min 0.14mm² (AWG25)
 Max 0.5mm² (AWG20)

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