Table of Contents

MCE_P1P20F - 022 : Connections

1. Informations

1.1 Release

Document:	**mce_p1p20f-022**
Description:	Electrical Connections Manual p1p20f-022
Editor:	Omar Sbalchiero
Approver	Gabriele Bazzi
Link:	https://www.qem.eu/doku/doku.php/en/strumenti/qmoveplus/j1p20/p1p20f-022/mce_p1p20f-022
Language:	English

Release document	Description	Note	Date
01	New manual		18/09/2020

1.1.1 Specifications/Copyright

2. Description

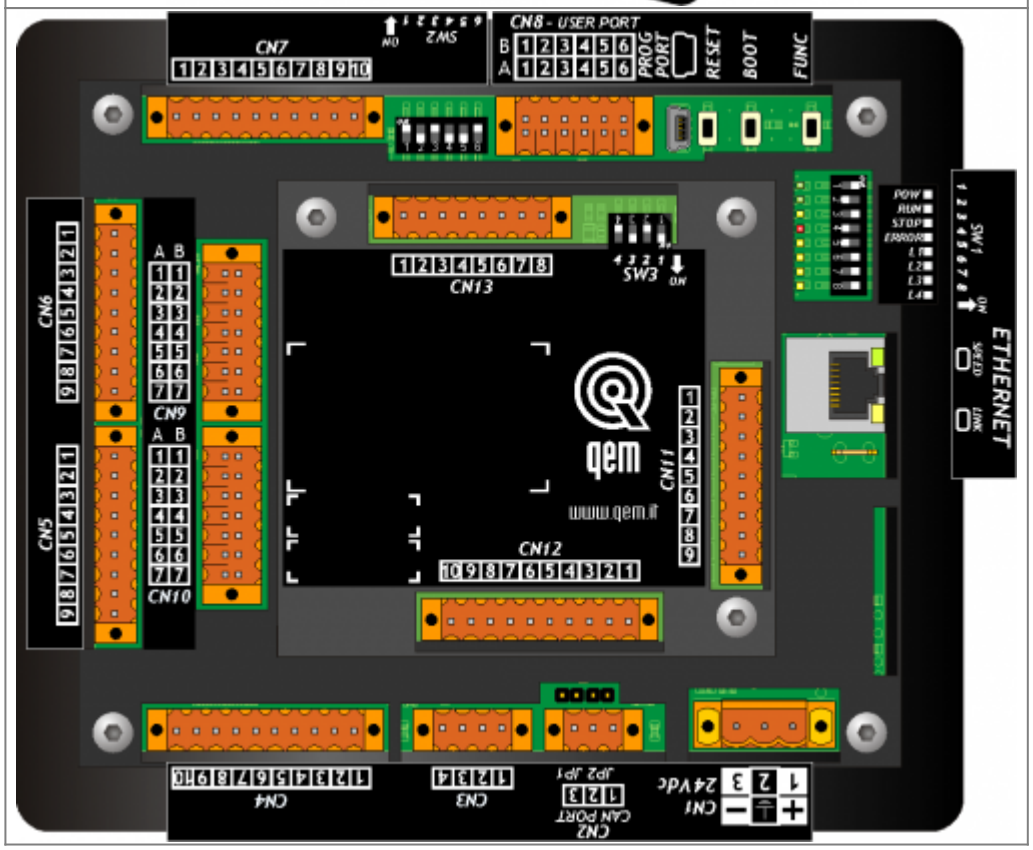
The **P1P20F - 022** software, controls the automation of **polishing machine max 20 heads**.

N.B.

- If you want to separately control the activation of the head motors with the lower and lift of the heads, you need to use the remote I/O module (RMC3M).

3. Hardware and connections

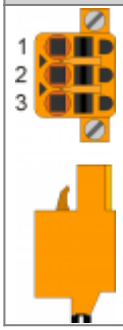
3.1 Operator panel



	MIMJ1P20Fx_BASE:Installation and Maintenance Manual

3.2 Power supply

The instrument will need to be powered to 24Vdc. Install an external fuse in series to the positive conductor +24Volt.

	PIN	ID	DESCRIPTION
	1	+24V	Positive power supply **+24Vdc**
	2	PE	Ground-PE
	3	0V	Common power supply **0Vdc**

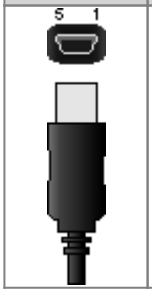
3.3 Connectivity

Nr. 1 PROG PORT → Serial with logical TTL standards for programming

Nr. 1 ETHERNET PORT

Nr. 1 CAN PORT for connection with external I/O module

3.3.1 PROG PORT (USB mini-B)

PROG PORT	Description
	Serial used for transferring and firmware update You must use only with the IQ009 or IQ013 accessories.

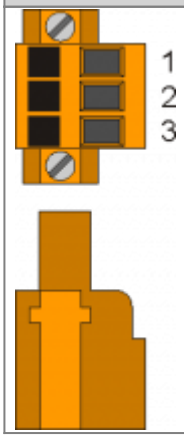
3.3.2 ETHERNET port

ETHERNET PORT	Description
	Connector RJ45. LED: * LINK: green led = cable connected (led on signals the cable is connected to both ends) * DATA: yellow led = data transmission (flashing led signals data transmission)

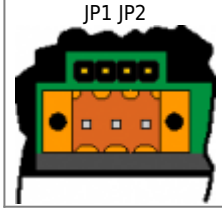
3.3.3 CANbus PORT

3.3.3.1 CN2

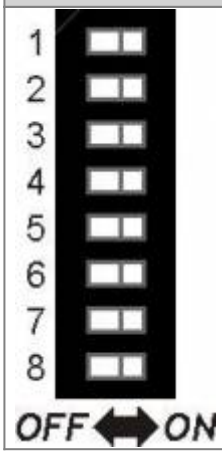
	Terminal	Symbol	Description

	Terminal	Symbol	Description
	1	CAN H	CAN H terminal
	2	CAN L	CAN L terminal
	3	0V	CAN common

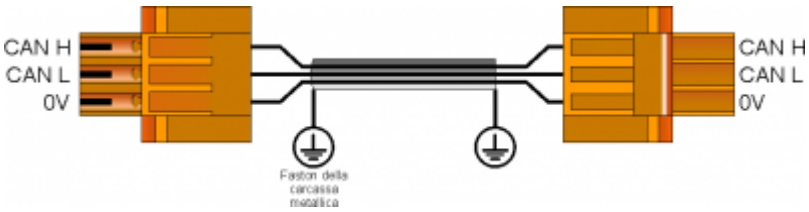
3.3.3.1.1 Terminating Resistance Setting

	Name jumper	Setting	Function
JP1 JP2 	JP1	INSERTED	Termination CAN activate
	JP2		

3.3.3.1.2 Baud-rate CANbus selector

SW1	Dip	DIP setting	Function
	1	-	-
	2	-	-
	3	-	-
	4	-	-
	5	ON	Speed selection of CANbus transmission
	7	ON	
		Baud-rate 1MB/S	
	6	-	-
	8	-	-

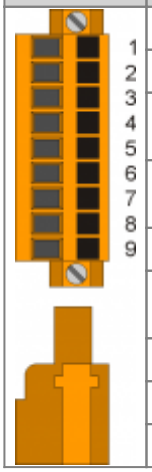
3.3.3.1.3 Connection example



3.4 Digital inputs

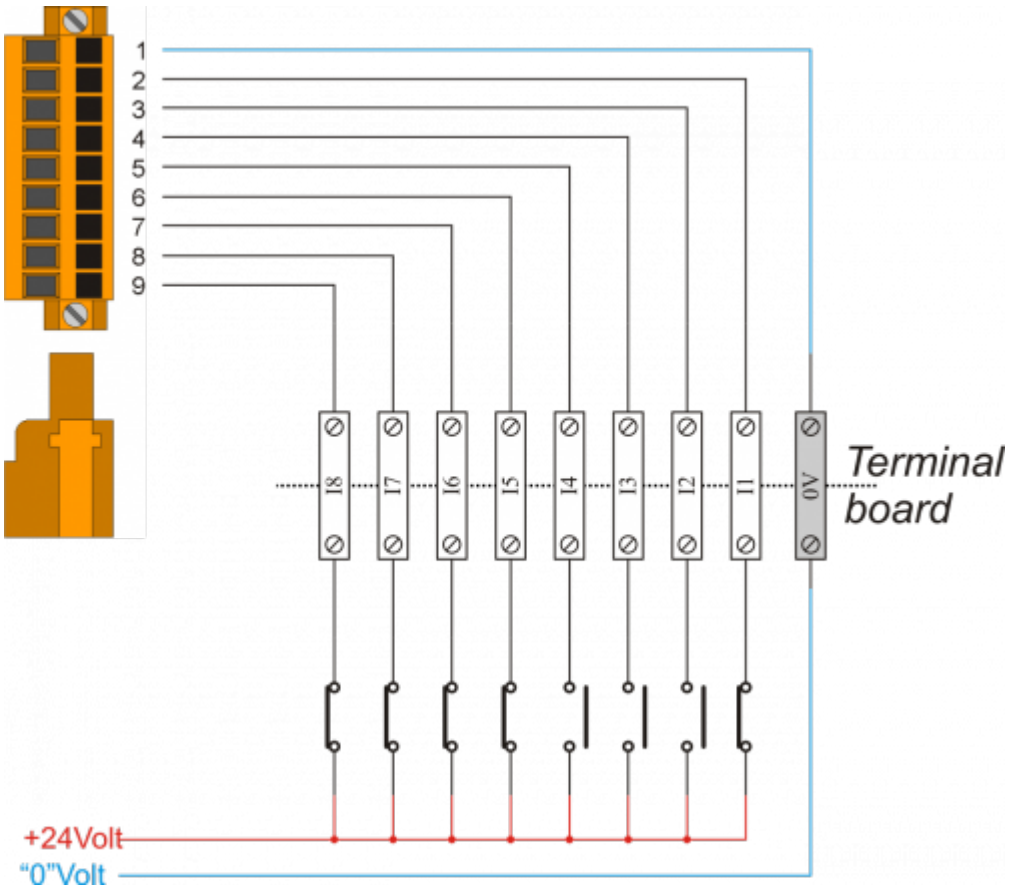
S = State	A = Action	ID
NO = Normally Open	**I** = Impulsive	**ID** = Software
NC = Normally close	**C** = Continuous	

3.4.1 CN6

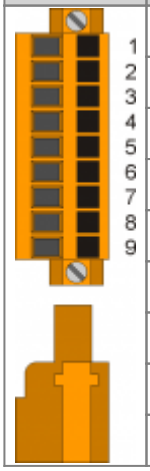


PIN	ID	DESCRIPTION		S	A
1	0V	Digital inputs common - Connected internally to 0Volt (PIN 3 - CN1)			
2	I1	**Emergency**	-	NC	C
3	I2	**Descent Heads/Start Motors**	**OFF** = Descent Heads **ON** = Start Motors	NO	C
4	I3	**Motors start**	Function enabled with *MP-05* = 1 o 2 parameter Start rolling activation of motors	NO	I
5	I4	**Enabled auxiliaries**	Machine ready to work	NO	C
6	I5	**NE**	Automatically, stop the bridge and conveyor/Reset the message “incorrect start rotating motors”	NC	C
7	I6	**Thermals**	Thermals line		
8	I7	**Carter**	Protections line		
9	I8	**Pressure switch**	Without air		

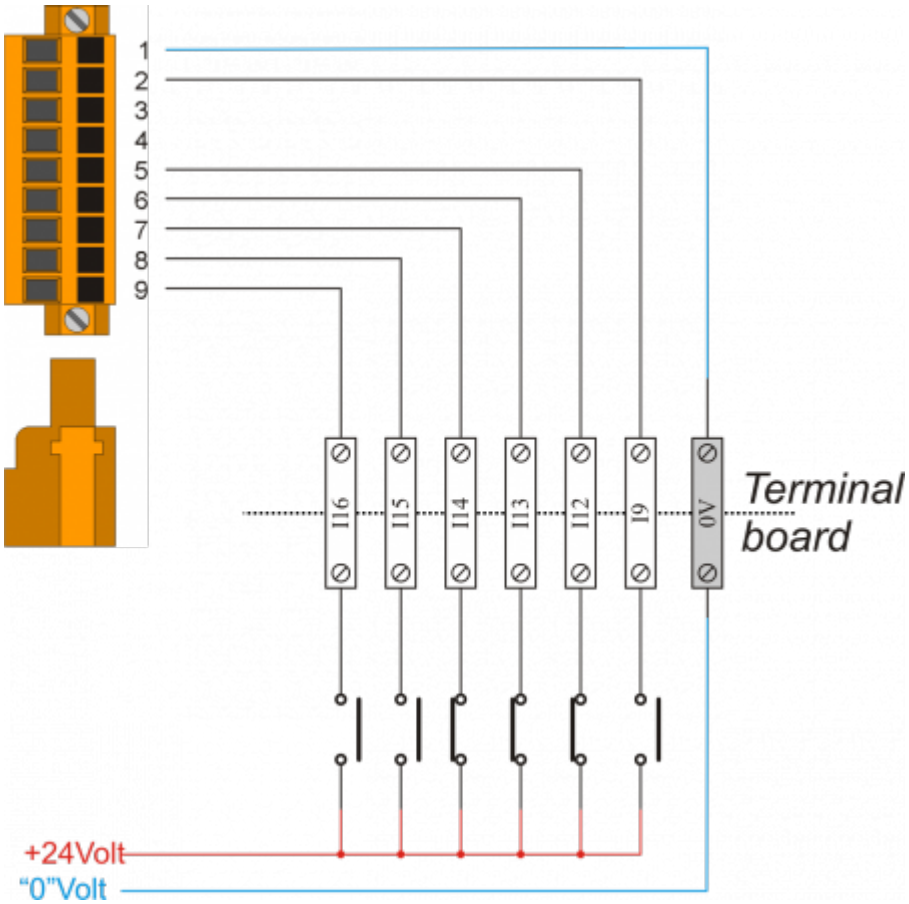
3.4.1.1 Connection example



3.4.2 CN5

	PIN	ID	DESCRIPTION				S	A
	1	0V	Digital inputs common - Connected internally to 0Volt (PIN 3 - CN1)					
	2	I9	**Piece acquisition**	Piece acquisition limit switch			NO	C
	3	I10	n.u.	-			-	-
	4	I11	n.u.	-			-	-
	5	I12	**Fault inverter**	Inverter alarm				
	6	I13	**Forward bridge**	Limit switch	With fast speed	(*MP-04 = 1*)	NC	C
	7	I14	**Backward bridge**					
	8	I15	**Forward slowing bridge**		With slow speed		NO	C
	9	I16	**Backward slowing bridge**					

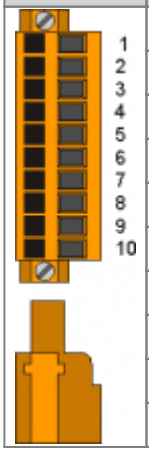
3.4.2.1 Connection example



3.5 Digital outputs

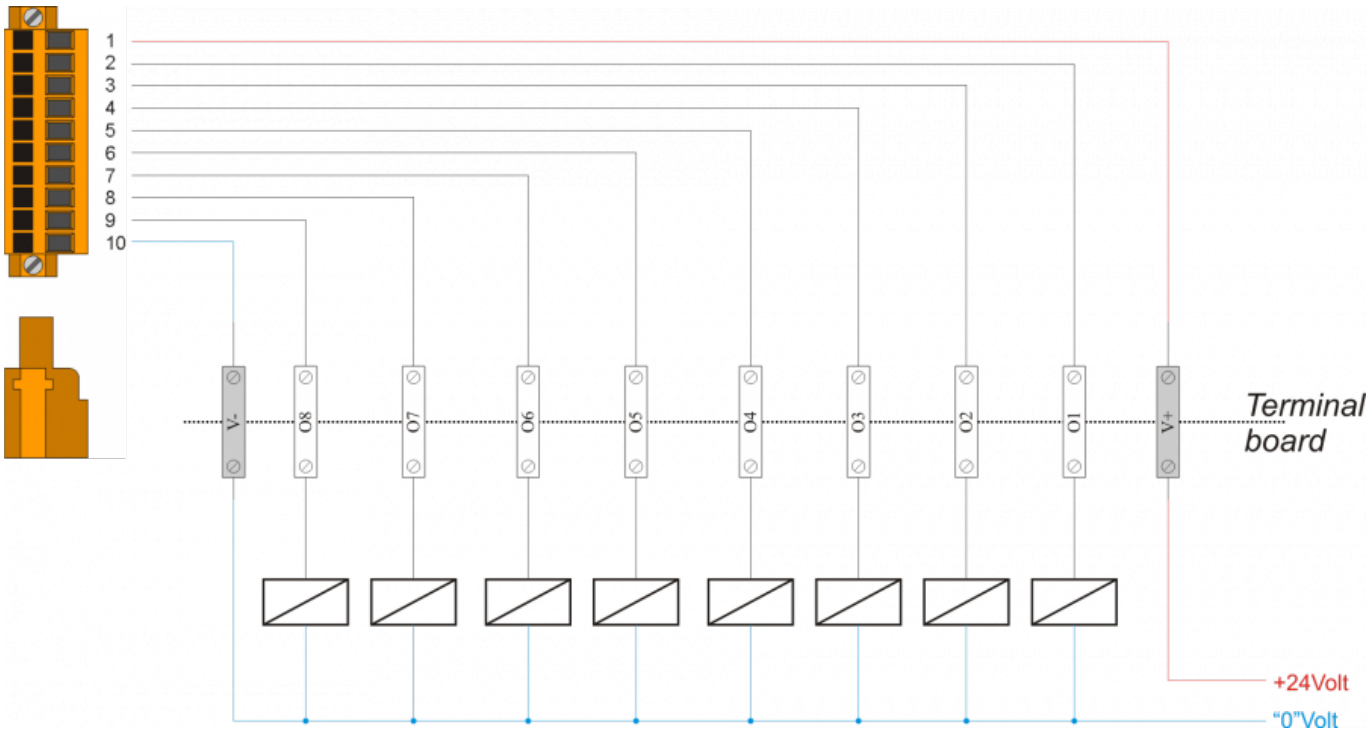
S = State	ID
OFF	**ID** = Software
ON	

3.5.1 CN7

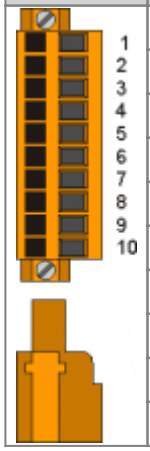


PIN	ID	DESCRIPTION			S
1	V+	Input power outputs O1÷O8 (12÷28Vdc)			
2	O1	**Head**	**1**	Head descent or motor start control	OFF
3	O2		**2**		
4	O3		**3**		
5	O4		**4**		
6	O5		**5**		
7	O6		**6**		
8	O7		**7**		
9	O8		**8**		
10	V-	Input power outputs (0Vdc)			

3.5.1.1 Connection example

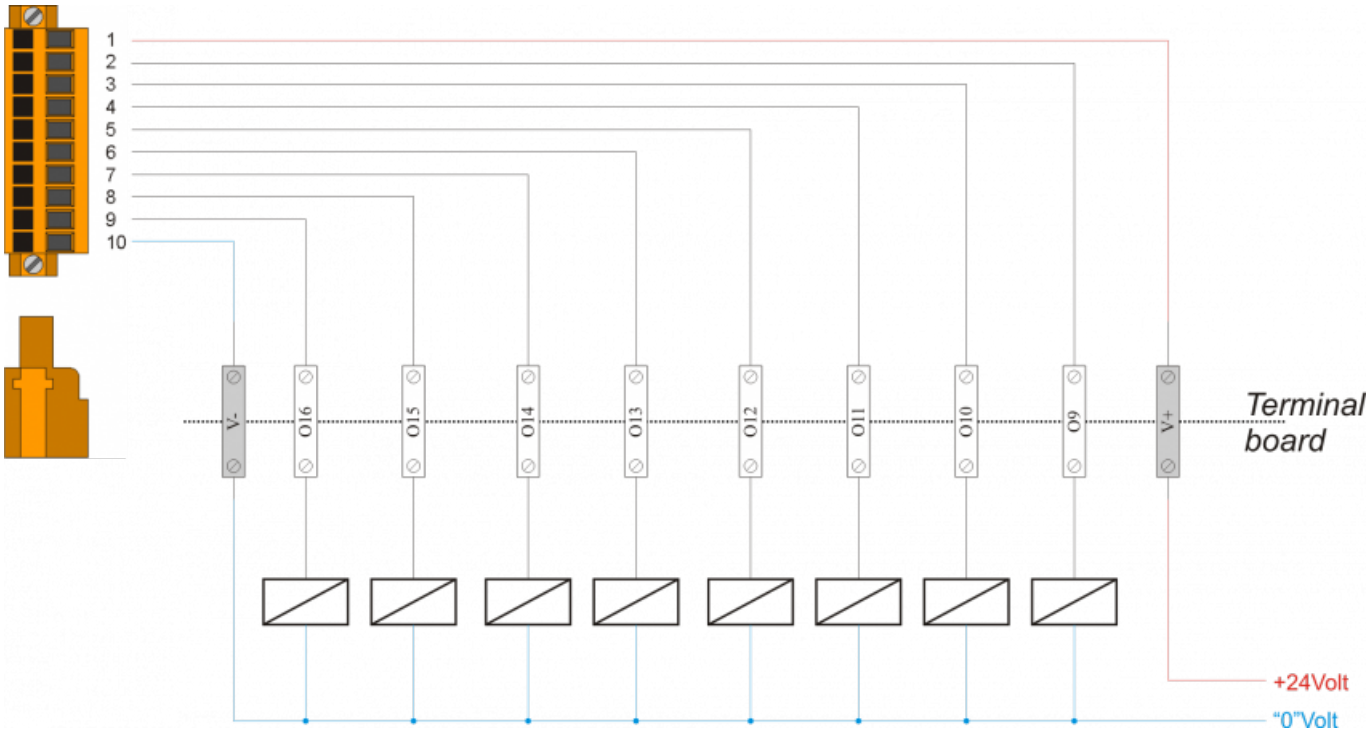


3.5.2 CN4

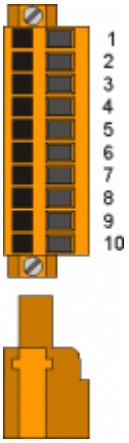


PIN	ID	DESCRIPTION			S
1	V+	Input power outputs O9÷O16 (12÷28Vdc)			
2	O9	**Head**	**9**	Head descent or motor start control	OFF
3	O10		**10**		
4	O11		**11**		
5	O12		**12**		
6	O13		**13**		
7	O14		**14**		
8	O15		**15**		
9	O16		**16**		
10	V-	Input power outputs (0Vdc)			

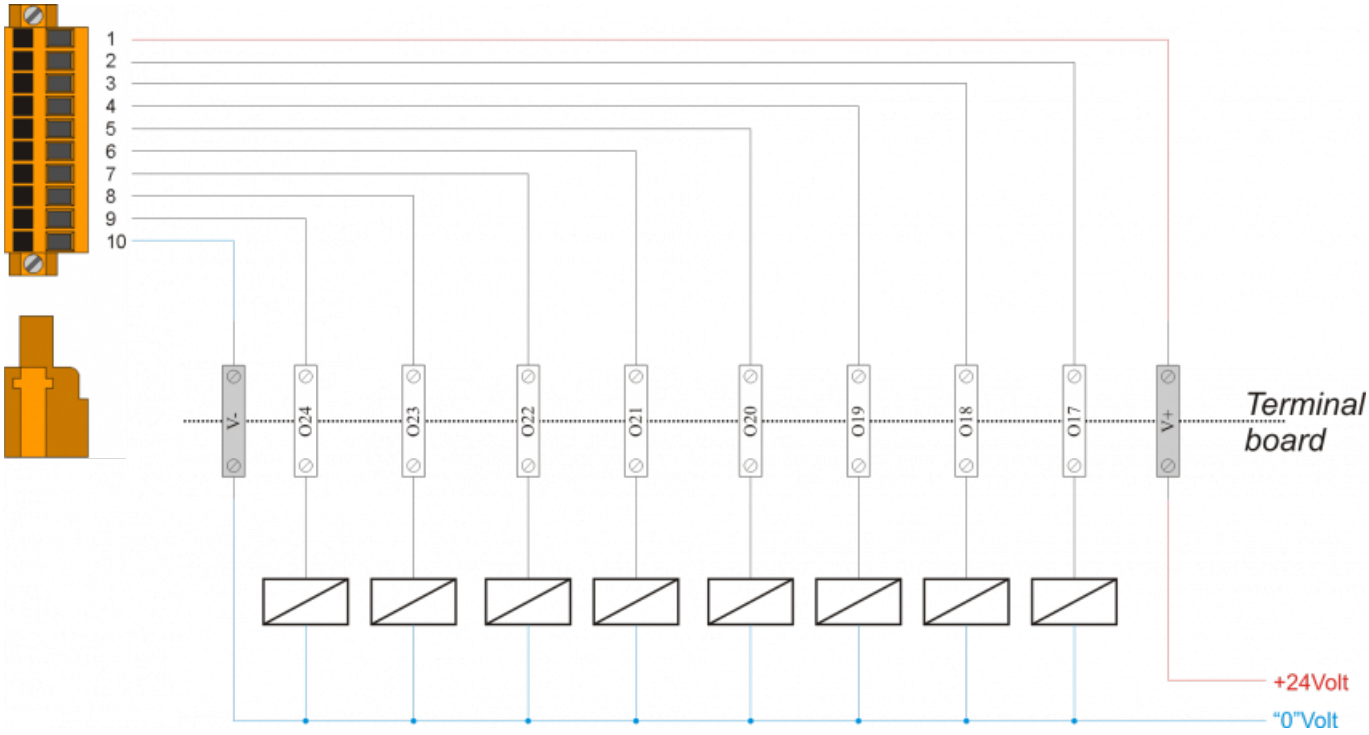
3.5.2.1 Connection example



3.5.3 CN12

	PIN	ID	DESCRIPTION			S
	1	V+	Input power outputs O17÷O24 (12÷28Vdc)			
	2	O17	**Descent Heads/Start Motors**	Descent heads and Start motors command **OFF** = Heads descent **ON** = Motors start	-	OFF
	3	O18	**End of motors start**	Signals the completion of the cascade motor start cycle.	-	OFF
	4	O19	**Mix Out**	Functions of the mix cycle, with activation and deactivation times settable in set-up.	-	-
	5	O20	**Piece alarm**	Activated when the number of pieces in simultaneous operations is equal to or greater than 30	-	-
	6	O21	**Conveyor direction**	**OFF** = forward **ON** = backward	-	-
	7	O22	**Bridge direction**	**OFF** = forward **ON** = backward	-	-
	8	O23	**Brush**	The output is activated when there is at least one piece in the machine	-	-
	9	O24	**Water valve**	-	-	-
	10	V-	Input power outputs (0Vdc)			

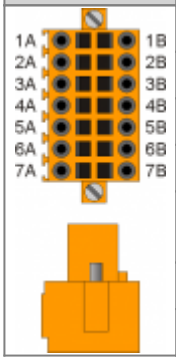
3.5.3.1 Connection example



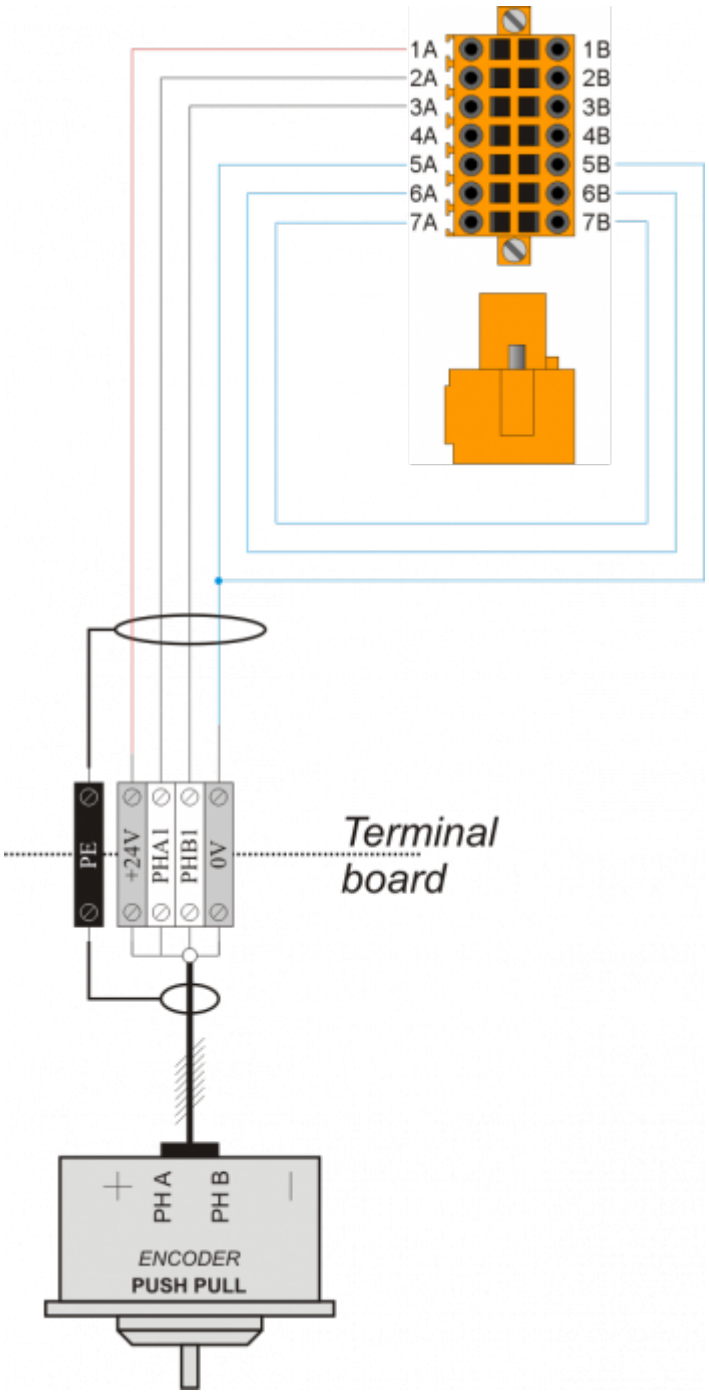
3.6 Bi-directional counter inputs

3.6.1 CN9

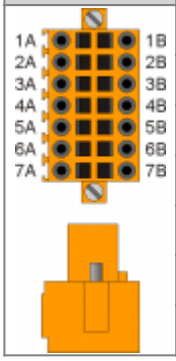
3.6.1.1 For "Push Pull" encoder type

	PIN	ID		DESCRIPTION	
	1A	+24V		Encoder power supply	**Conveyor**
	2A	PHA1		**Phase A**	
	3A	PHB1		**Phase B**	
	4A	Z1		n.u.	
	5A	0V	∩	Counter inputs common - Connected internally to 0Volt (PIN 3 - CN1) Connect to PIN 5B	
	6A			Connect to PIN 6B	
	7A			Connect to PIN 7B	

3.6.1.1.1 Connection example

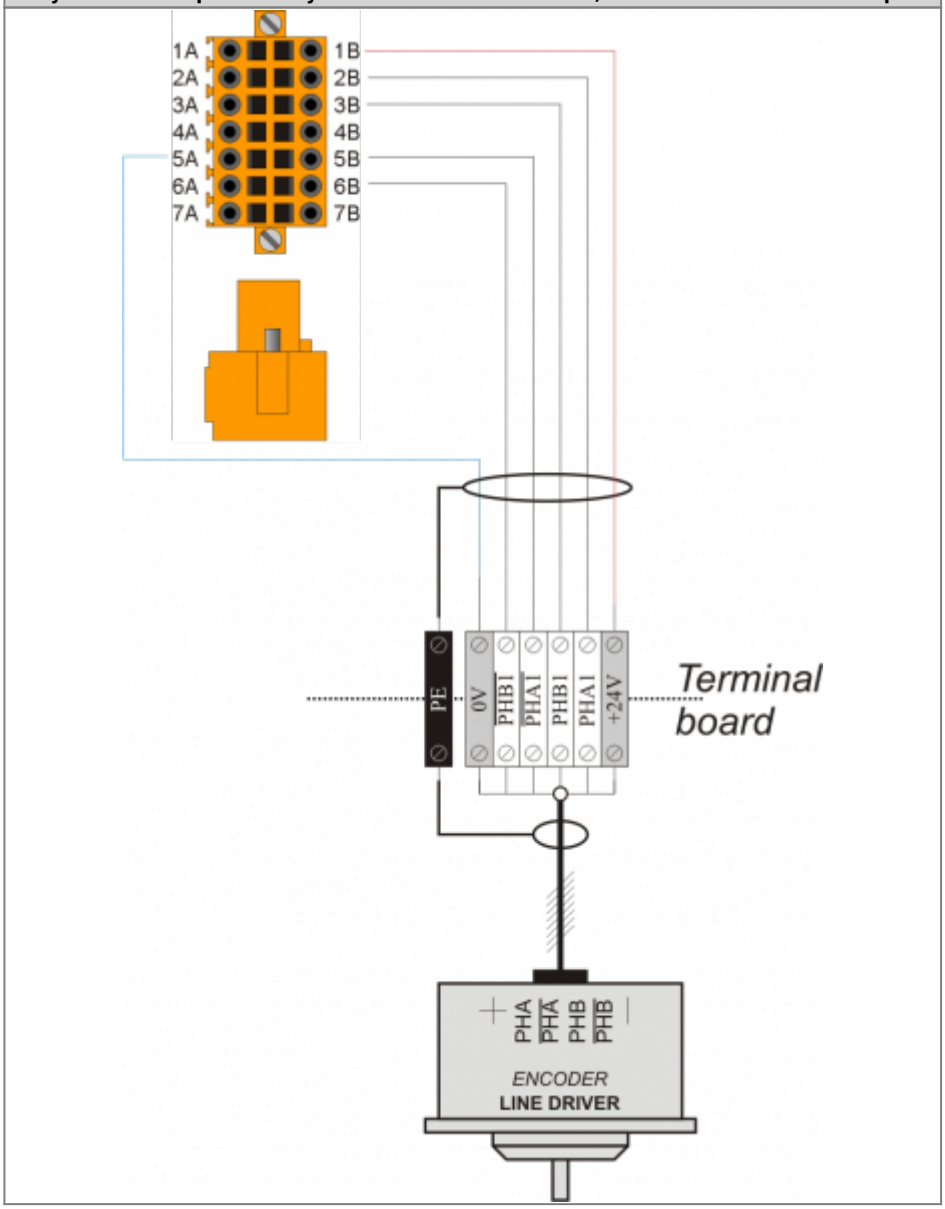


3.6.1.2 For "Line Driver" encoder type

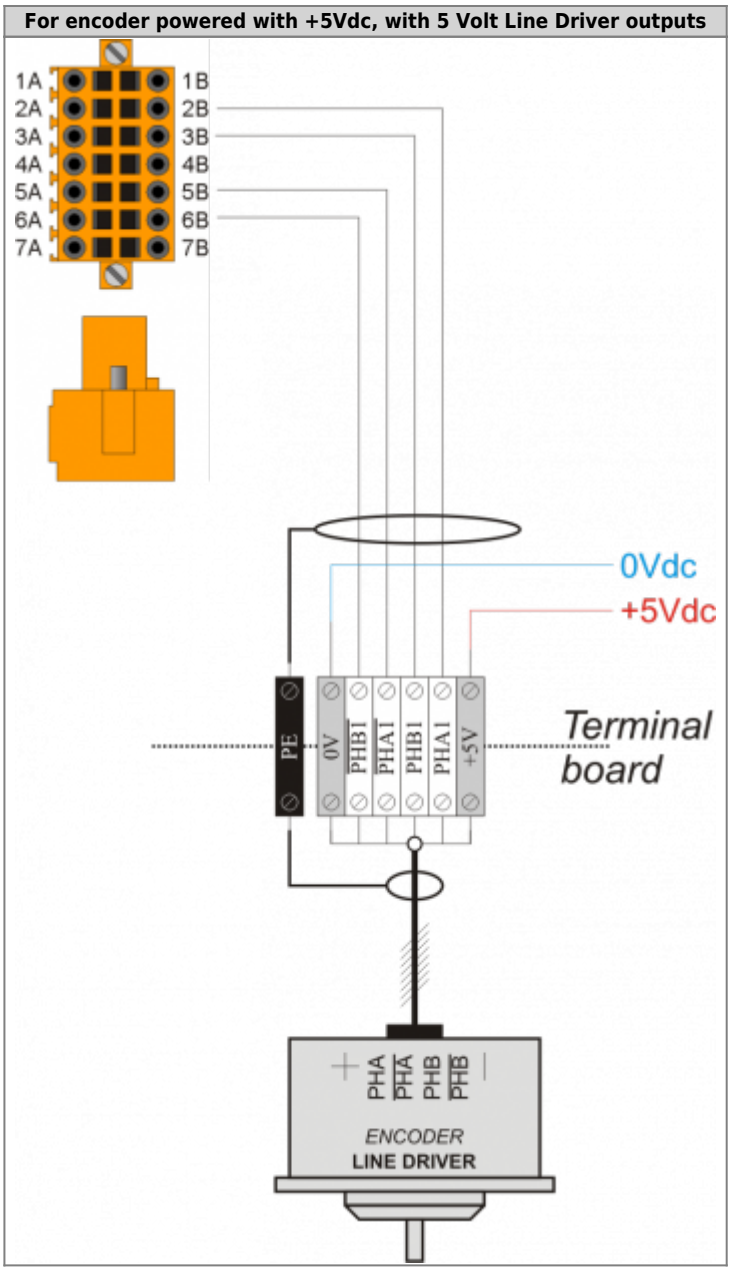
	PIN	ID	DESCRIPTION	
	1B	+24V	Encoder power supply	**Conveyor**
	2B	PHA1+	**Phase A+**	
	3B	PHB1+	**Phase B+**	
	4B	Z1+	n.u.	
	5B	PHA1-	**Phase A-**	
	6B	PHB1-	**Phase B-**	
	7B	Z1-	n.u.	

3.6.1.2.1 Connection example

Only for Encoder powered by the instrument at +24Vdc, with 5 Volt Line Driver outputs

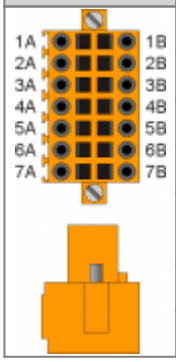


For encoder powered with +5Vdc, with 5 Volt Line Driver outputs

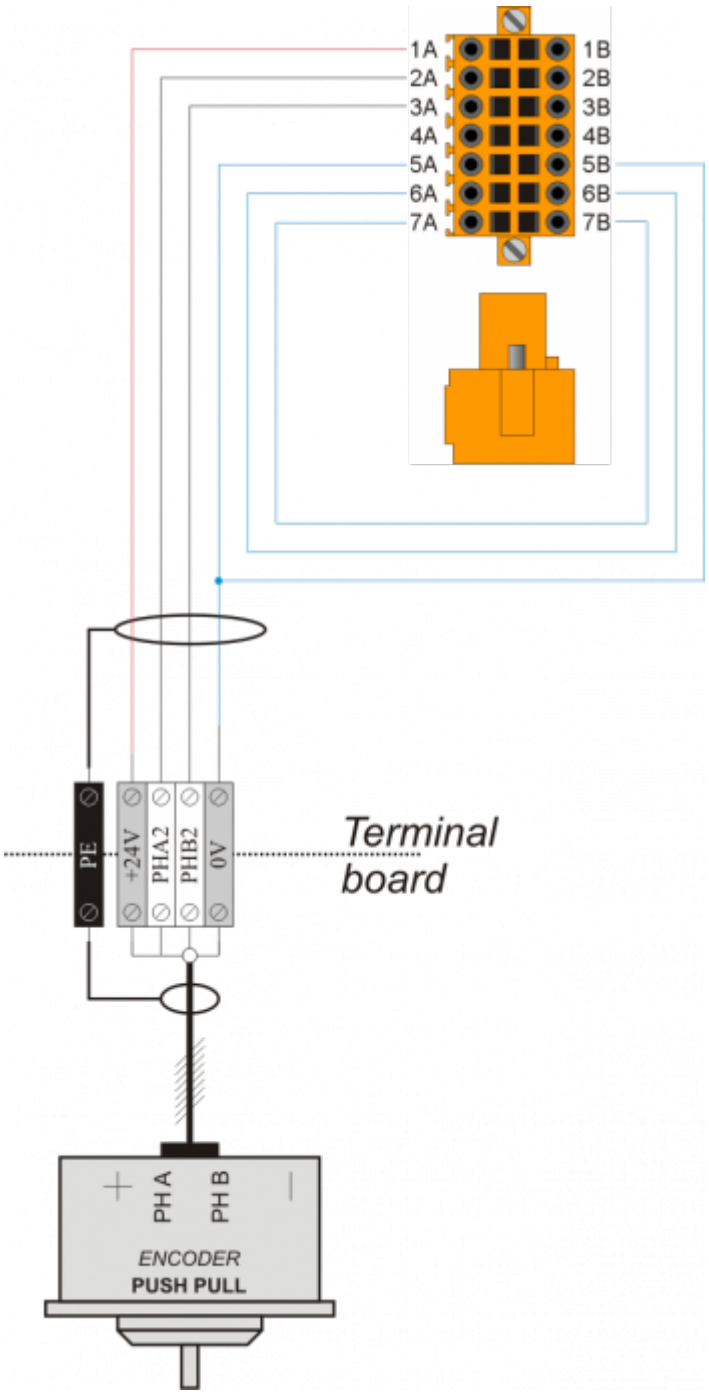


3.6.2 CN10

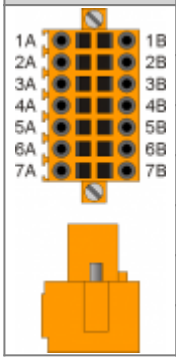
3.6.2.1 For "Push Pull" encoder type

	PIN	ID		DESCRIPTION	
	1A	+24V		Encoder power supply	**Bridge**
	2A	PHA2		**Phase A**	
	3A	PHB2		**Phase B**	
	4A	Z2		n.u.	
	5A	0V	∩	Counter inputs common - Connected internally to 0Volt (PIN 3 - CN1) Connect to PIN 5B	
	6A			Connect to PIN 6B	
	7A			Connect to al PIN 7B	

3.6.2.1.1 Connection example

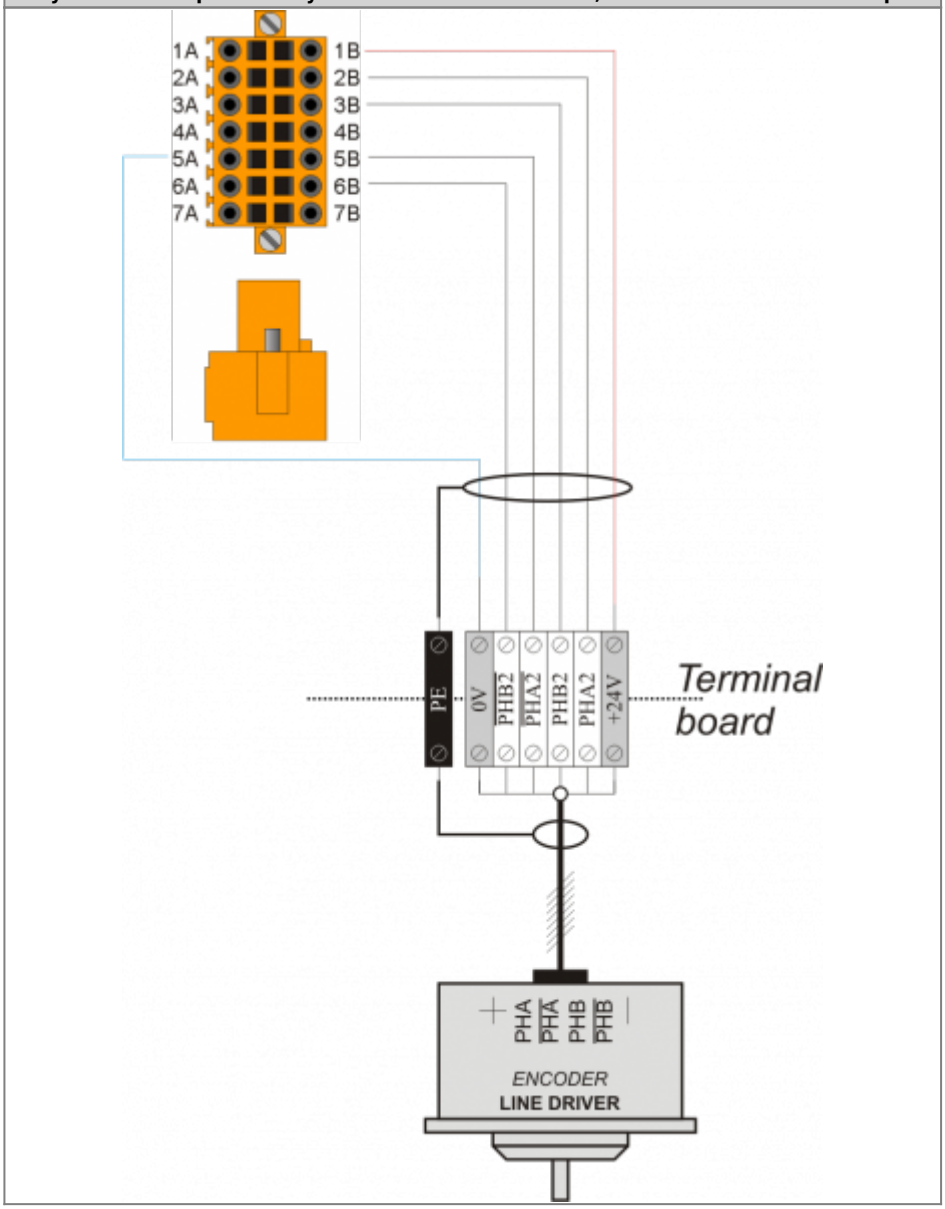


3.6.2.2 For "Line Driver" encoder type

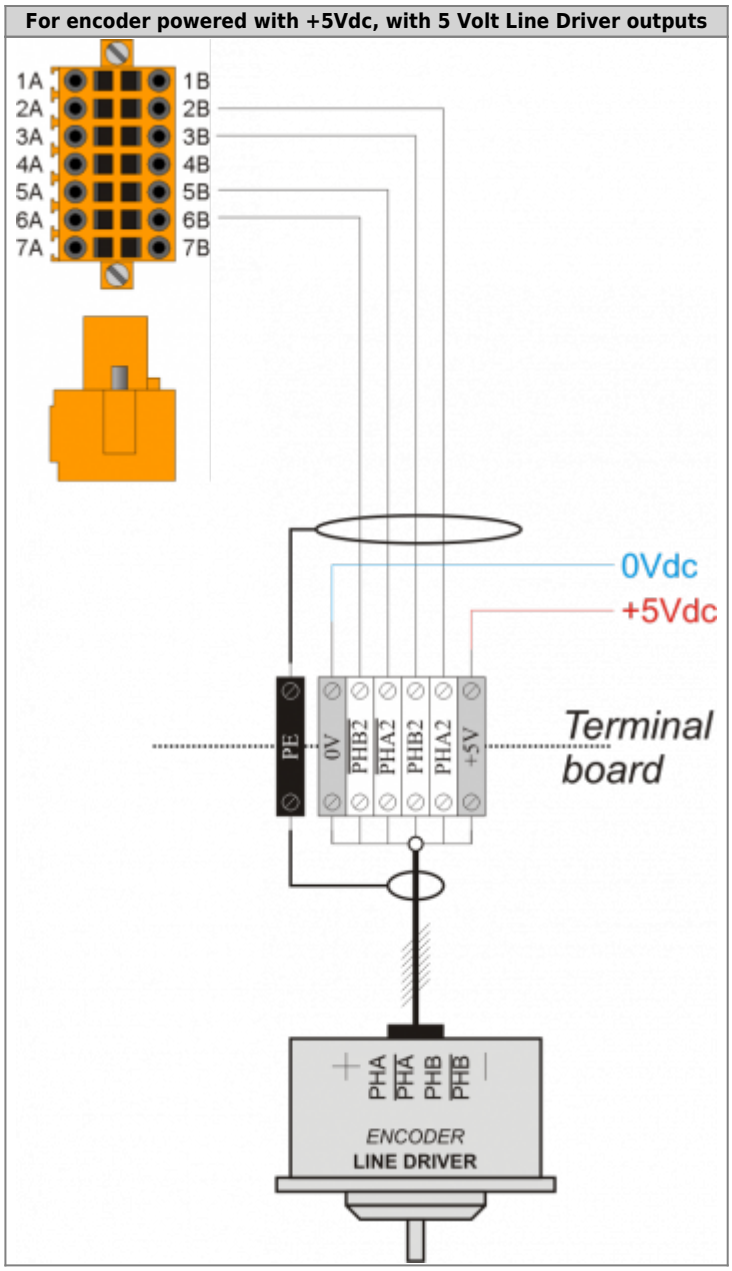
	PIN	ID	DESCRIPTION	
	1B	+24V	Encoder power supply	**Bridge**
	2B	PHA2+	**Phase A+**	
	3B	PHB2+	**Phase B+**	
	4B	Z2+	n.u.	
	5B	PHA2-	**Phase A-**	
	6B	PHB2-	**Phase B-**	
	7B	Z2-	n.u.	

3.6.2.2.1 Connection example

Only for Encoder powered by the instrument at +24Vdc, with 5 Volt Line Driver outputs

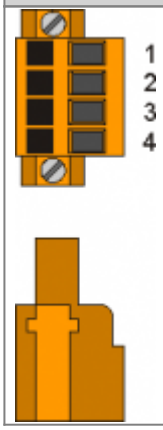


For encoder powered with +5Vdc, with 5 Volt Line Driver outputs

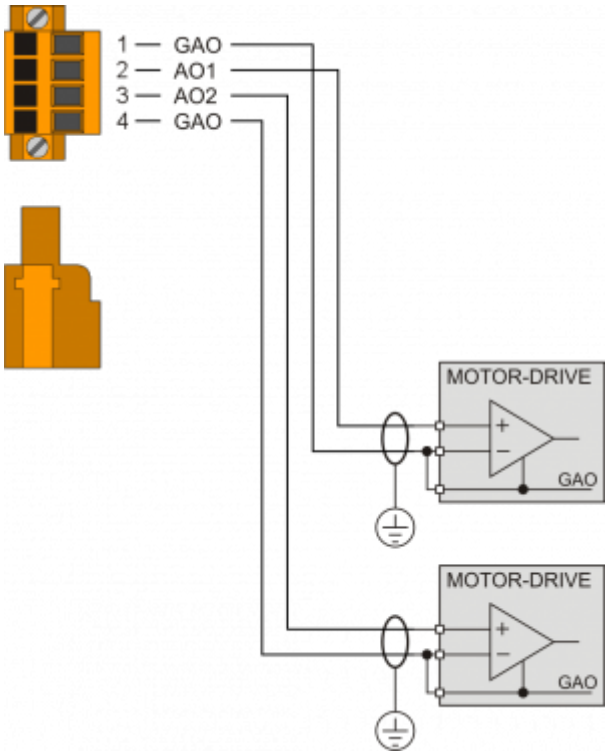


3.7 Analog outputs

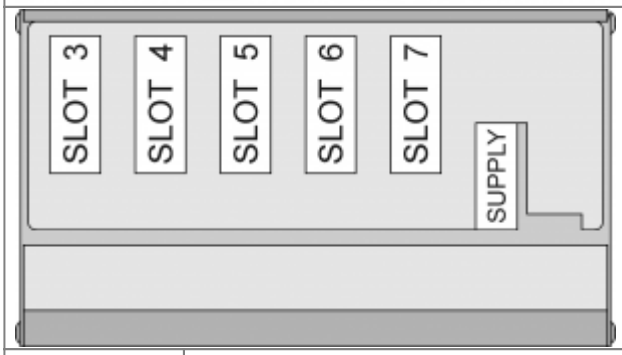
3.7.1 CN3

<table>
<tr><th></th><th>PIN</th><th>ID</th><th colspan="3">DESCRIPTION</th></tr>
<tr><td rowspan="4"> 
</td><td>1</td><td>GAO</td><td colspan="3">Common of analog outputs</td></tr>
<tr><td>2</td><td>AO1</td><td rowspan="2">Output 0-10V</td><td rowspan="2">Inverter command</td><td>Conveyor</td></tr>
<tr><td>3</td><td>AO2</td><td>Bridge</td></tr>
<tr><td>4</td><td>GAO</td><td colspan="3">Common of analog outputs</td></tr>
</table>

3.7.1.1 Connection example



3.8 External I/O module RMC-3MB01-M9/0/0/0/P16/P16/24Vdc

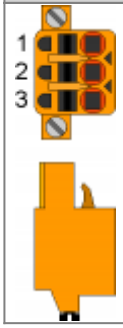


RMC-3MB01:Installation and Maintenance Manual

3.8.1 Power supply

3.8.1.1 CN1

The instrument will need to be powered to 24Vdc. Install an external fuse in series to the positive conductor +24Volt.

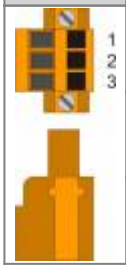
	PIN (NUMBER)	ID	DESCRIPTION
	1 (1)	0V	Common power supply 0Vdc
	2 (2)	PE	Ground-PE
	3 (3)	+24V	Positive power supply +24Vdc

3.8.2 Connectivity

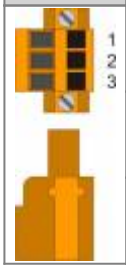
3.8.2.1 PROG PORT (USB mini-B)

PROG PORT	Description
	Serial used for transferring and firmware update You must use only with the IQ009 or IQ013 accessories.

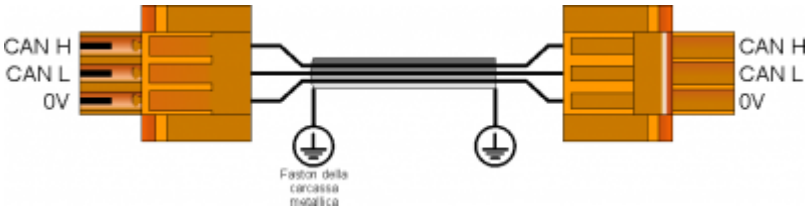
3.8.2.2 CN2

	PIN (NUMBER)	ID	DESCRIPTION
	1 (4)	0V	CAN common
	2 (5)	CAN_L	CAN low signal
	3 (6)	CAN_H	Can high signal

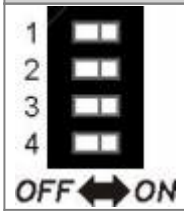
3.8.2.3 CN3

	PIN (NUMBER)	ID	DESCRIPTION
	1 (7)	0V	CAN common
	2 (8)	CAN_L	CAN low signal
	3 (9)	CAN_H	Can high signal

3.8.2.3.1 Connection example

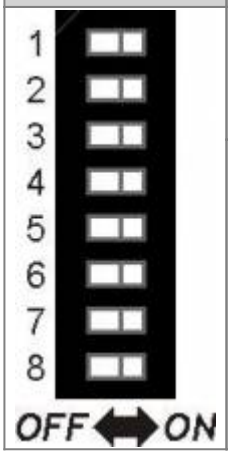


3.8.2.3.2 Terminating Resistance Setting

SW3	Num. Dip	Name Dip	DIP Setting	Function
	1	JP1	ON	Termination CAN PORT
	2	JP2	ON	
	3	JP1	NC	
	4	JP2	NC	

If you enable the terminating of the CAN port, both the DIP JP1 and JP2 must be enabled.

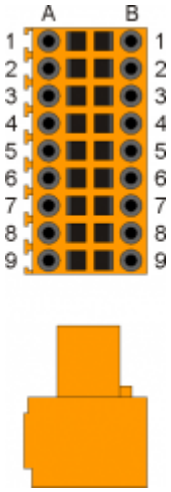
3.8.2.3.3 Address and speed settings

SW1		Nr. DIP	Function
	*CAN transmission speed select*	1	ON
		2	ON
		Baud-Rate	1Mb
	CAN transmission address select	3	ON
		4	OFF
		5	OFF
		6	OFF
		7	OFF
		8	OFF
		ID	1

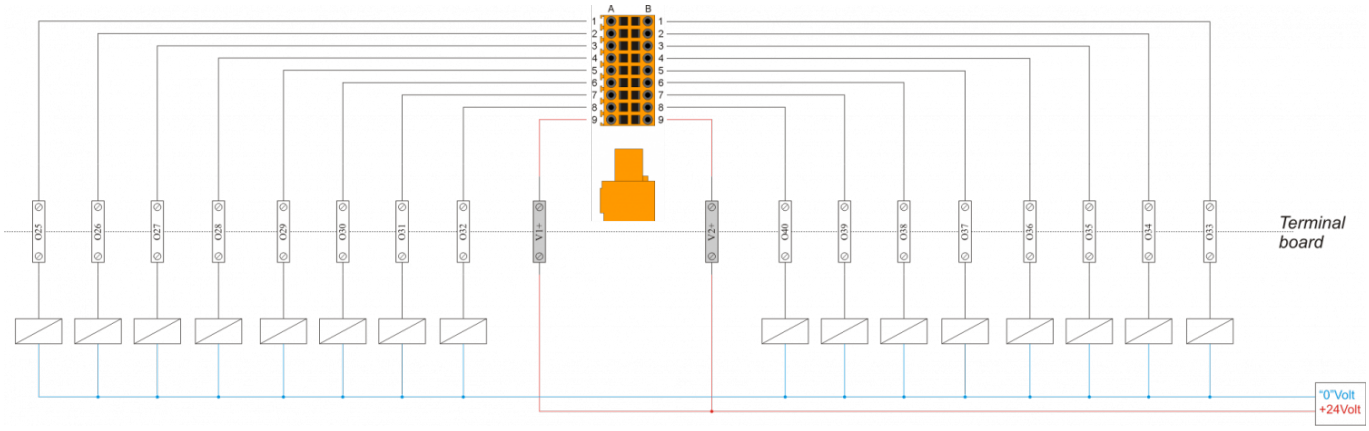
3.8.3 Digital outpus

S = Stato	ID
OFF	**ID** = Software
ON	

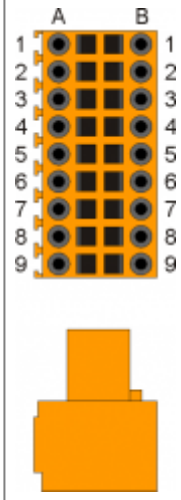
3.8.3.1 SLOT 6

	PIN	ID	DESCRIPTION		S
	1A	O25	**Head motor**	1	OFF
	2A	O26		2	
	3A	O27		3	
	4A	O28		4	
	5A	O29		5	
	6A	O30		6	
	7A	O31		7	
	8A	O32		8	
	9A	V1+	Input power outputs O25÷O32 (12÷28V dc)		-
	1B	O33	**Head motor**	9	OFF
	2B	O34		10	
	3B	O35		11	
	4B	O36		12	
	5B	O37		13	
	6B	O38		14	
	7B	O39		15	
	8B	O40		16	
	9B	V2+	Input power outputs O33÷O40 (12÷28V dc)		-

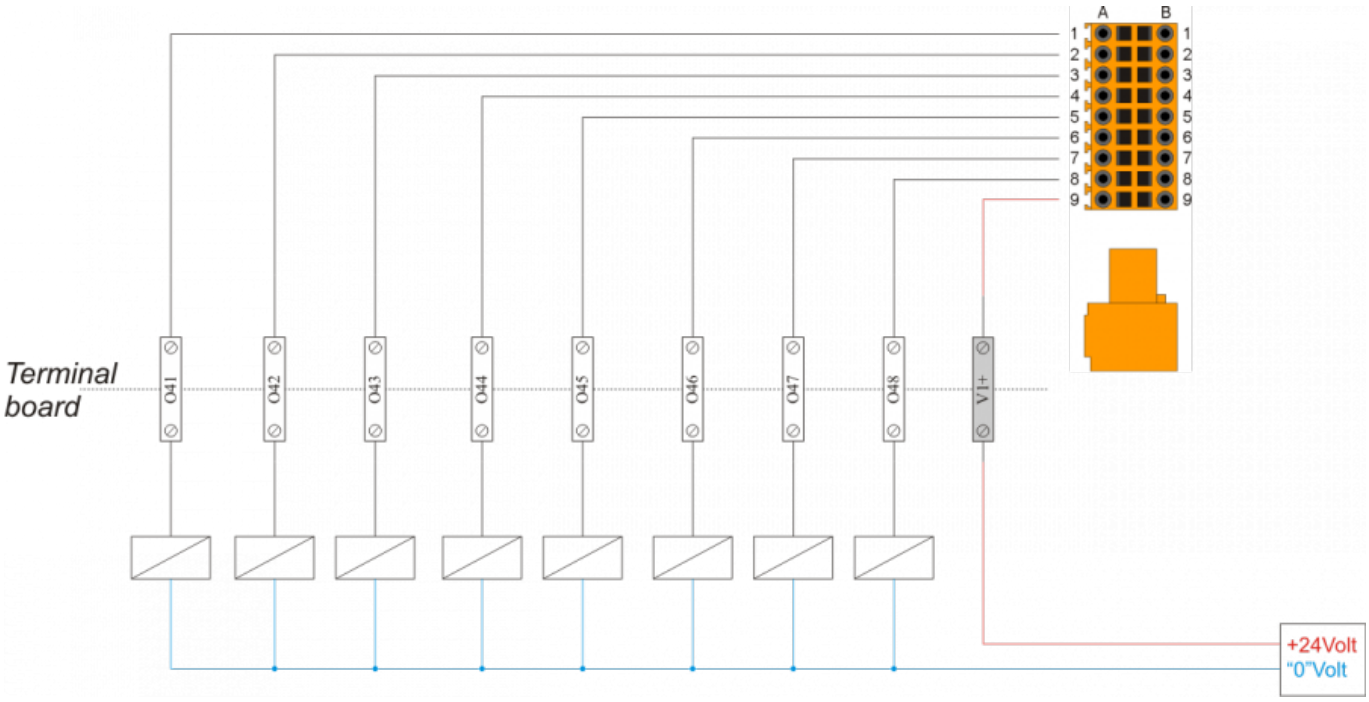
3.8.3.1.1 Connection example



3.8.3.2 SLOT 7

	PIN	ID	DESCRIPTION		S
	1A	O41	**Head lower**	17	OFF
	2A	O42		18	
	3A	O43		19	
	4A	O44		20	
	5A	O45	**Head Motor**	17	
	6A	O46		18	
	7A	O47		19	
	8A	O48		20	
	9A	V1+	Input power outputs O41÷O48 (12÷28V dc)		-
	1B	O49	n.u.	-	-
	2B	O50		-	-
	3B	O51		-	-
	4B	O52		-	-
	5B	O53		-	-
	6B	O54		-	-
	7B	O55		-	-
	8B	O56		-	-
	9B	V2+	Input power outputs O49÷O56 (12÷28V dc)		-

3.8.3.2.1 Connection example



4. Assistance

For supplying you fast service, at the lowest cost, we need your support.

	
Follow all instructions provided in the MIMAT manual	If the problem remains, fill out the “Request Form for assistance” on the page Contacts at www.qem.it site. Our technicians will get elements essential for the understanding of your problem.

Repair

To provide you with an efficient service, please read and adhere to the instructions given here

Shipping

It is recommended to pack the instrument with materials that are able to cushion any falls.

		
Use the original package: it must protect the instrument during transport.	Attach: 1. A description of the anomaly; 2. A part of the electric scheme where the equipment is inserted 3. The planning of the equipment (set up, quotas of job, parameters...). 4. Request a quote for repair; if not required, the cost will be calculated in the final balance.	A full description of the problem, will help identify and resolve your problems fast. A careful packaging will avoid further inconveniences.