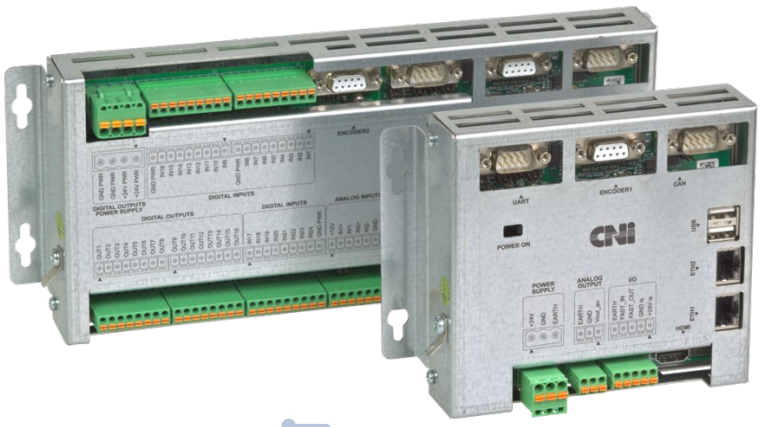
MicroNC



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SOMMARIO

1 General information

1.1 Warnings and principal safety information

1.1.1 Distribution of the manual

- The manual is an integral part of the product and must remain with it at all times. If the product does not have a manual, it must be requested from CNI.
- A product without a manual is missing one of its essential safety requirements.
- The manual must be carefully preserved, distributed and made available to all interested parties.
- The instructions indicate the behaviour required for the correct use of the product as envisaged by the manufacturer. In the case of contradictions between any of these instructions and health and safety standards, contact CNI for possible corrections and/or adaptations.
- In order to avoid incorrect operations that could cause danger to the personnel, it is important to read and understand all the documentations supplied with the product.
- Keep this manual in a suitable location and always within reach.

1.1.2 Structure and symbols adopted for the manual

In order to organise the subjects covered and simplify the search for information, the manual has been divided into chapters and paragraphs. If the manual is used in its digital version, the desired subject can be selected by clicking directly on the corresponding item on the contents page or, alternatively, using the bookmark display. In order to make the subjects easier to understand, the manual uses numbered tables and illustrations. In the digital version, they can be displayed directly by clicking on the relative cross references. By convention, bulleted lists are used in the descriptive parts, while numbered lists are used to describe a sequence of operations.

Various symbols are used in this manual; to prevent danger to the user and others, to prevent damage to the equipment and to ensure correct usage. Below the symbols and their meanings are described. The meanings of these symbols are described below.

ATTENTION: Indicates a procedure which, if performed incorrectly or not at all, could cause injury.

WARNING: Indicates a procedure which, if performed incorrectly or not at all, could cause malfunctions or damage to the equipment.

INFORMATION: Indicates important information for the correct operation of the equipment.

1.2 Packaging, transport and storage

Once the package is opened, check the integrity of both the product and the packaging. If the product or the packaging is damaged, contact the supplier.

After unpacking the product, it is recommended to dispose of the packaging material according to the regulations for the recycling of materials and waste disposal.

1.2.1 Conditions of storage

If the product is intended for prolonged storage, it must be protected from the attack of atmospheric and environmental agents (weather, humidity, dust, aggression of chemical agents, etc.).

1.3 Warranty

CNI guarantees that the product has passed all the required tests and is free from manufacturing defects.

Interventions under warranty are carried out at the CNI headquarters, with transport charged to the customer.

CNI does not pay the compensation for production downtime caused by product failure during the warranty period.

CNI is not liable for product defects caused by failure to comply with the rules provided by the manual or by misuse or mistreatment of the product.

The purchaser has the right to replace any parts found to be defective, except in those cases where the problems are due to tampering and / or the assembly of non-original CNI spare parts and / or the replacement of components not provided in this manual and, in each case, without the prior written consent of CNI.

Under no circumstances will CNI, or its suppliers, be held liable for damages (including, without limitation, damage to physical integrity, as well as damage due to loss or loss of earnings, business interruption, loss of information or other economic losses) deriving from the use of CNI products, even if CNI has been warned of the possibility of such damages.

The warranty is void if the buyer does not inform in detail to CNI in a written form the nature of any defects found in the product within 15 days from the identification of the defect. The warranty also lapses, even if the seller will not be able to carry out any required checks or if, having the seller requested a return of the faulty piece, the buyer fails to return it within two weeks of the request.

Dimensional drawings and photographies are provided by way of example only, as a reference for easier understanding of the text.

The company pursues a supply continuity policy to ensure spare parts for the years to come. Unfortunately, due to the rapid obsolescence of electronic components, CNI is sometimes forced to make changes to its products on functional, accessory or aesthetic parts; changes that could introduce variations to the initial technical specifications. CNI reserves the right to make these changes without the obligation to communicate them to anyone or for any reason.

2 MicroNC system configuration

2.1 Remote Configurations

Rif.	Descrizione	CPU_ ENC	CPU	CPU_ 2 CAN	CPU_ENC _I0	CPU_ IO	CPU_ENC_ I0_STEP	CPU_IO_ STEP
1	Power Connector	✓	✓	✓	✓	✓	✓	✓
2	Analog Outputs Connector	✓			✓		✓	
3	I/O Connector	✓			✓		✓	
4	HDMI Port	✓	✓	✓	✓	✓	✓	✓
5	Presetting for Cable Clap	✓	✓	✓	✓	✓	✓	✓
6	Ethernet1 Port	✓	✓	✓	✓	✓	✓	✓
7	Ethernet2 Port	✓	✓	✓	✓	✓	✓	✓
8	USB 2.0 Ports	✓	✓	✓	✓	✓	✓	✓
9	Slotted Hole	✓	✓	✓	✓	✓	✓	✓
10	CAN Connector	✓	✓	✓	✓	✓	✓	✓
11	Encoders 1	✓			✓		✓	
12	RS232/422/485 Serial Port	✓	✓	✓	✓	✓	✓	✓
13	Power-ON LED	✓	✓	✓	✓	✓	✓	✓
14	Grounding faston	✓	✓	✓	✓	✓	✓	✓
15	Threaded Inserts							
16	Encoders 2				✓	✓	✓	✓
17	Digital Input LEDs [1-8]				✓	✓	✓	✓
18	Digital Inputs Connector [1-8]				✓	✓	✓	✓
19	Digital Input LEDs [9-16]				✓	✓	✓	✓
20	Digital Inputs Connector [9-16]				✓	✓	✓	✓
21	Outputs Power Connector				✓	✓	✓	✓
22	Digital Output LEDs [1-8]				✓	✓	✓	✓
23	Digital Outputs Connector [1-8]				✓	✓	✓	✓

Rif.	Descrizione	CPU_ ENC	CPU	CPU_ 2 CAN	CPU_ENC _I0	CPU_ IO	CPU_ENC_ I0_STEP	CPU_IO_ STEP
24	Digital Outputs Connector [9-16]				✓	✓	✓	✓
25	Digital Output LEDs [9-16]				✓	✓	✓	✓
26	Digital Inputs Connector [17-24]				✓	✓	✓	✓
27	Digital Input LEDs [17-24]				✓	✓	✓	✓
28	Analog Inputs Connector				✓	✓	✓	✓
29	Digital Output LEDs [17-24]						✓	✓
30	Digital Outputs Connector [17-24]						✓	✓
31	Step Outputs Connector						✓	✓
32	Encoder 3.. 6						✓	✓
33	WD LED						✓	✓
34	Digital Inputs Connector [25-32]						✓	✓
35	Digital Input LEDs [25-32]						✓	✓

Inside the manual, the components present only in the CPU_ENC version, are indicate with the symbol **(*)**.

2.2 Video Configurations

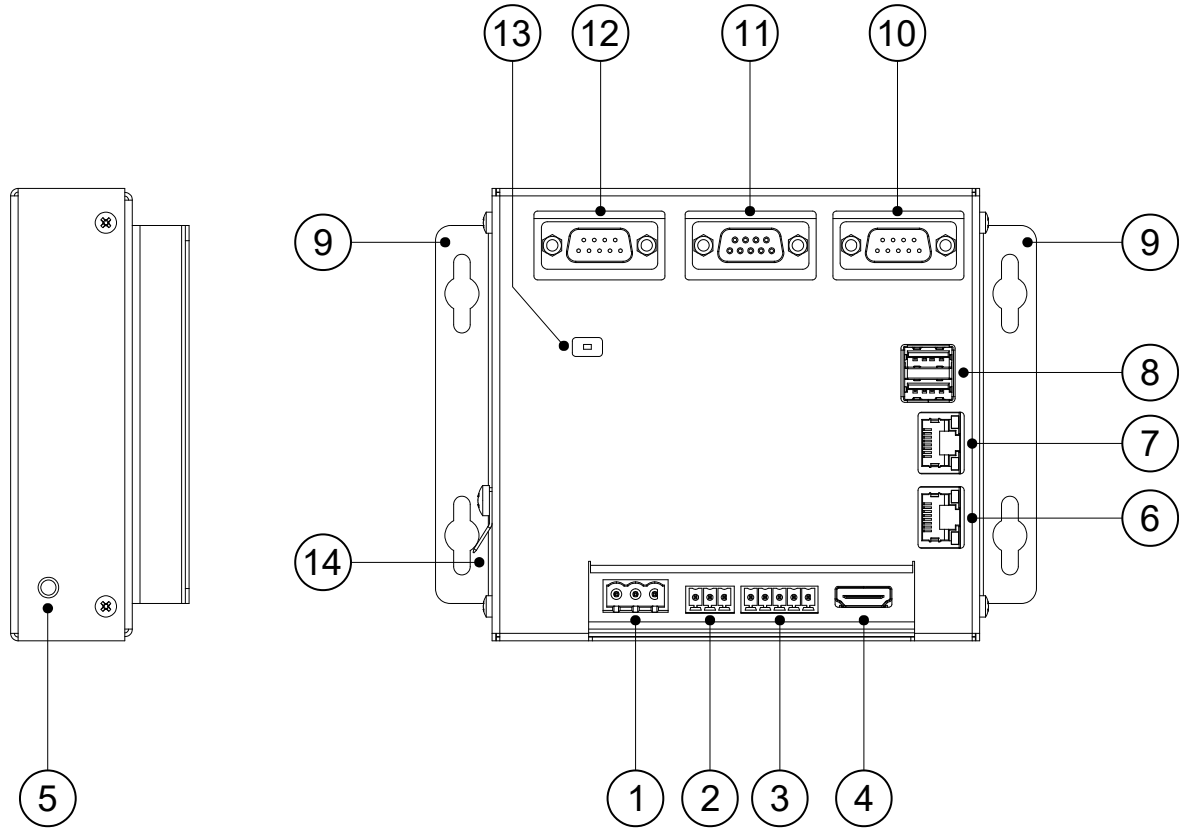
Rif.	Descrizione	Video _CPU_ ENC	Video_ CPU	Video_ CPU_ ENC_I0	Video_ CPU_ IO	Video_CPU_ ENC_I0_ STEP	Video_CPU_ IO_STEP
1	Power Connector	✓	✓	✓	✓	✓	✓
2	Analog Outputs Connector	✓		✓		✓	
3	I/O Connector	✓		✓		✓	
4	HDMI Port	✓	✓	✓	✓	✓	✓
5	Presetting for Cable Clap	✓	✓	✓	✓	✓	✓
6	Ethernet1 Port	✓	✓	✓	✓	✓	✓
7	Ethernet2 Port	✓	✓	✓	✓	✓	✓
8	USB 2.0 Ports	✓	✓	✓	✓	✓	✓
9	Slotted Hole	✓	✓	✓	✓	✓	✓
10	CAN Connector	✓	✓	✓	✓	✓	✓
11	Encoders 1	✓		✓		✓	
12	RS232/422/485 Serial Port	✓	✓	✓	✓	✓	✓
13	Power-ON LED	✓	✓	✓	✓	✓	✓
14	Grounding faston	✓	✓	✓	✓	✓	✓
15	Threaded Inserts	✓	✓	✓	✓	✓	✓
16	Encoders 2			✓	✓	✓	✓
17	Digital Input LEDs [1-8]			✓	✓	✓	✓
18	Digital Inputs Connector [1-8]			✓	✓	✓	✓
19	Digital Input LEDs [9-16]			✓	✓	✓	✓
20	Digital Inputs Connector [9-16]			✓	✓	✓	✓
21	Outputs Power Connector			✓	✓	✓	✓
22	Digital Output LEDs [1-8]			✓	✓	✓	✓
23	Digital Outputs Connector [1-8]			✓	✓	✓	✓

Rif.	Descrizione	Video _CPU_ ENC	Video_ CPU	Video_ CPU_ ENC_I0	Video_ CPU_ IO	Video_CPU_ ENC_I0_ STEP	Video_CPU_ IO_STEP
24	Digital Outputs Connector [9-16]			✓	✓	✓	✓
25	Digital Output LEDs [9-16]			✓	✓	✓	✓
26	Digital Inputs Connector [17-24]			✓	✓	✓	✓
27	Digital Input LEDs [17-24]			✓	✓	✓	✓
28	Analog Inputs Connector			✓	✓	✓	✓
29	Digital Output LEDs [17-24]					✓	✓
30	Digital Outputs Connector [17-24]					✓	✓
31	Step Outputs Connector					✓	✓
32	Encoder 3.. 6					✓	✓
33	WD LED					✓	✓
34	Digital Inputs Connector [25-32]					✓	✓
35	Digital Input LEDs [25-32]					✓	✓

Inside the manual, the components present only in the CPU_ENC version, are indicate with the symbol **(*).**

3 MicroNC

3.1 MicroNC CPU_ENC description

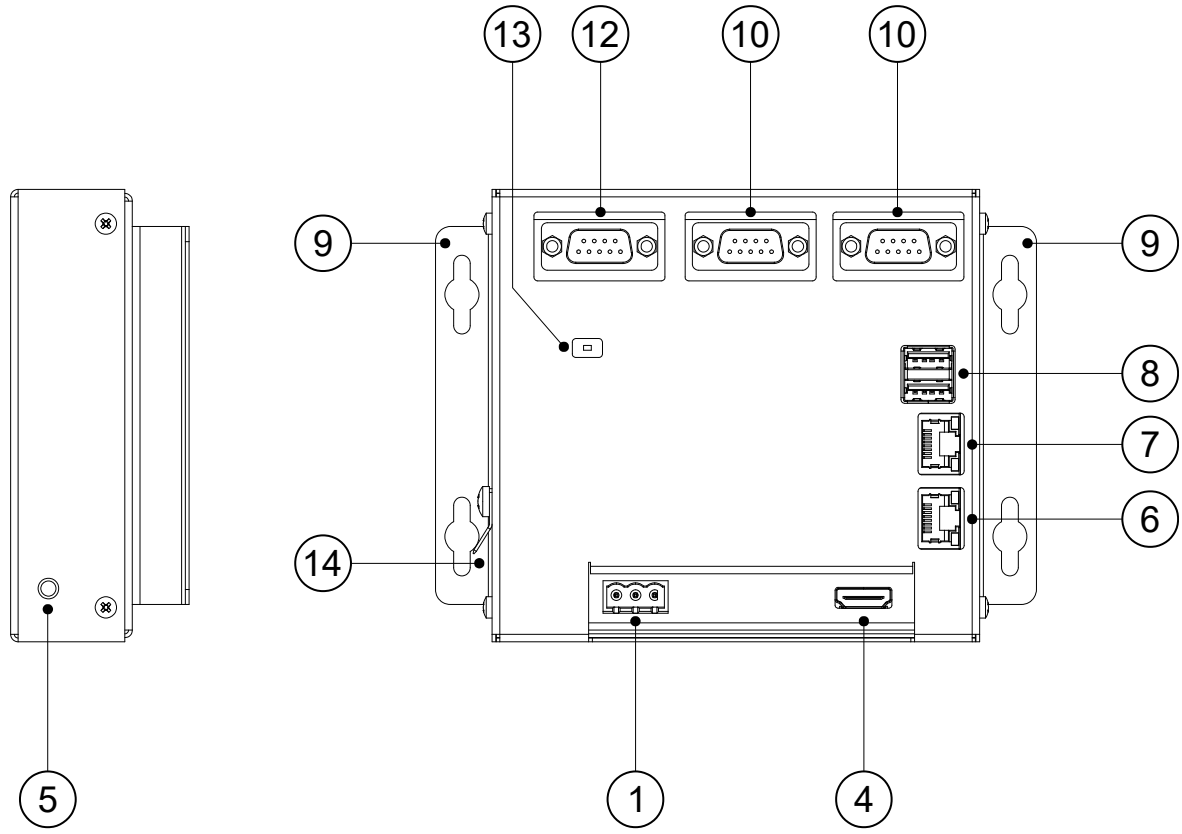


RIGHT VIEW

FRONT VIEW

1) Power Connector.
2) Analog Output Connector **(*).**
3) I/O Connector **(*).**
4) HDMI Port.
5) Presetting for Cable Clap.
6) Ethernet1 Port.
7) Ethernet2 Port.
8) USB 2.0 Ports.
9) Slotted Hole.
10) CAN Connector.
11) Encoders 1 **(*).**
12) RS232/422/485 Serial Port.
13) Power-ON LED.
14) Grounding faston.

3.2 MicroNC CPU_2CAN description

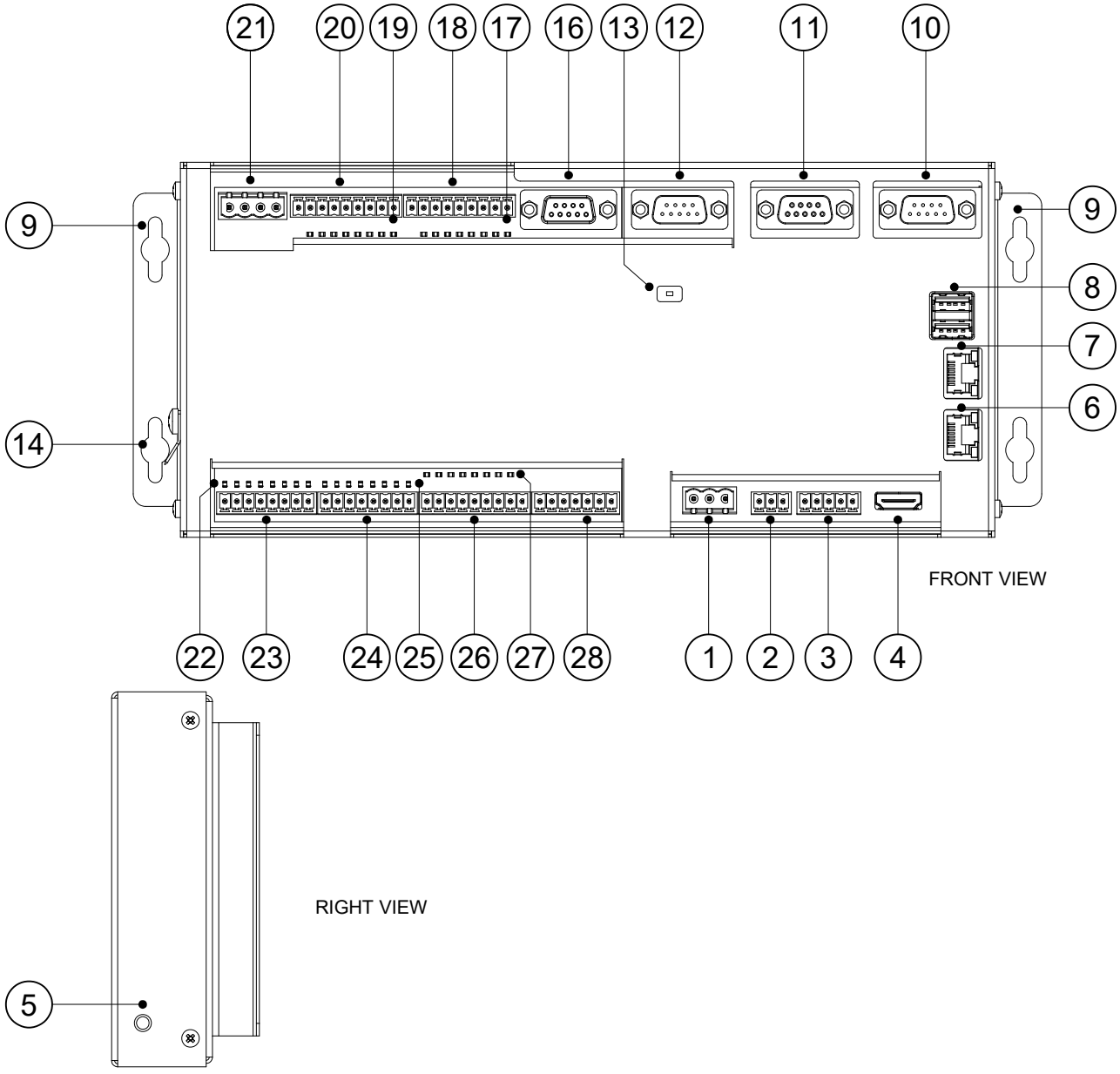


RIGHT VIEW

FRONT VIEW

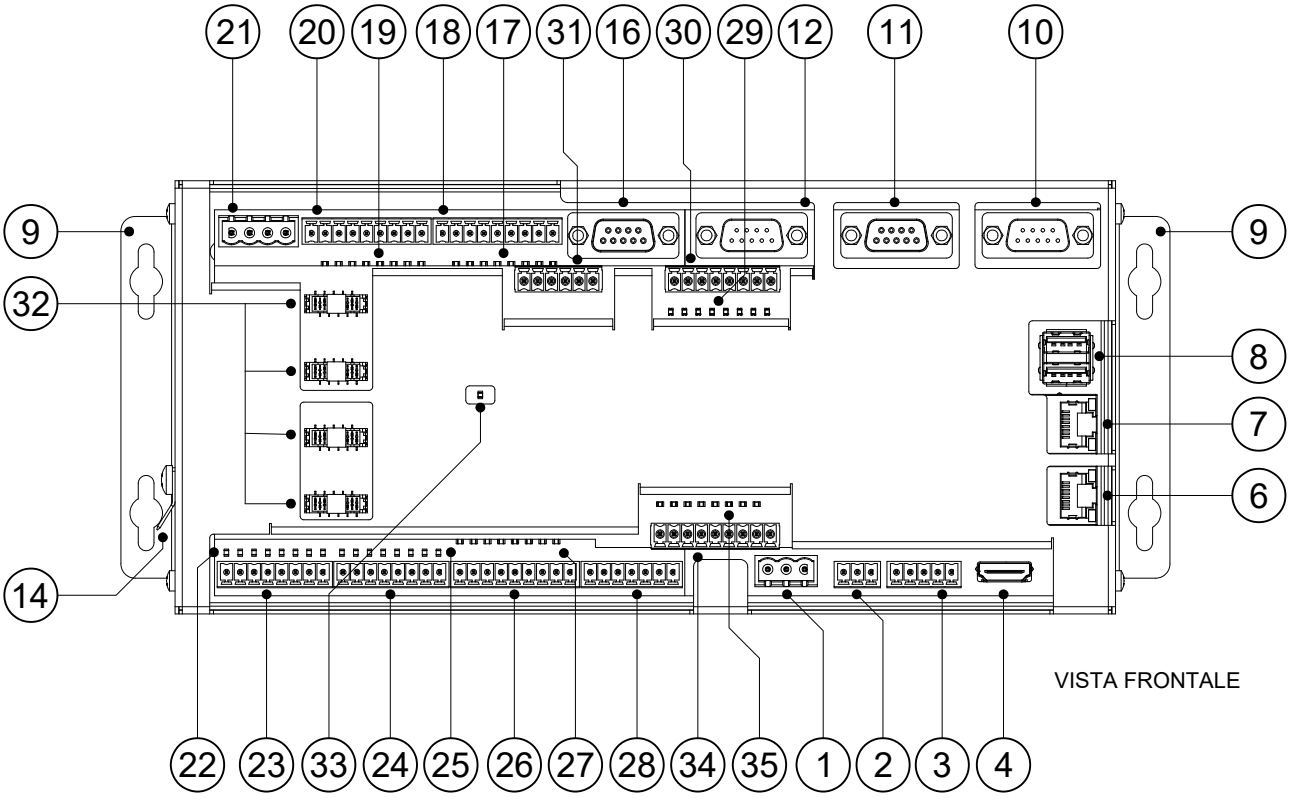
1) Power Connector.
2) **Not used in this configuration.**
3) **Not used in this configuration.**
4) HDMI Port.
5) Presetting for Cable Clap.
6) Ethernet1 Port.
7) Ethernet2 Port.
8) USB 2.0 Ports.
9) Slotted Hole.
10) CAN Connector.
11) **Not used in this configuration.**
12) RS232/422/485 Serial Port.
13) Power-ON LED.
14) Grounding faston.

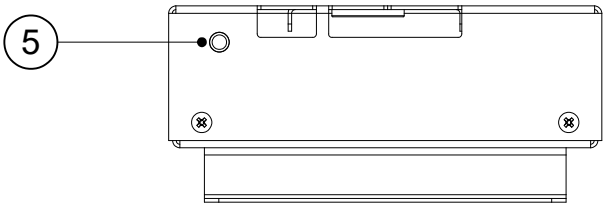
3.3 MicroNC CPU_ENC_I0 description



1) Power Connector.
2) Analog Outputs Connector **(*).**
3) I/O Connector **(*).**
4) HDMI Port.
5) Presetting for Cable Clap.
6) Ethernet1 Port.
7) Ethernet2 Port.
8) USB 2.0 Ports.
9) Slotted Hole.
10) CAN Connector.
11) Encoders 1 **(*).**
12) RS232/422/485 Serial Port.
13) Power-ON LED.
14) Grounding faston.
15) Not used in this configuration.
16) Encoders 2.
17) Digital Input LEDs [1-8].
18) Digital Inputs Connector [1-8].
19) Digital Input LEDs [9-16].
20) Digital Inputs Connector [9-16].
21) Outputs Power Connector.
22) Digital Output LEDs [1-8].
23) Digital Outputs Connector [1-8].
24) Digital Outputs Connector [9-16].
25) Digital Output LEDs [9-16].
26) Digital Inputs Connector [17-24].
27) Digital Input LEDs [17-24].
28) Analog Inputs Connector.

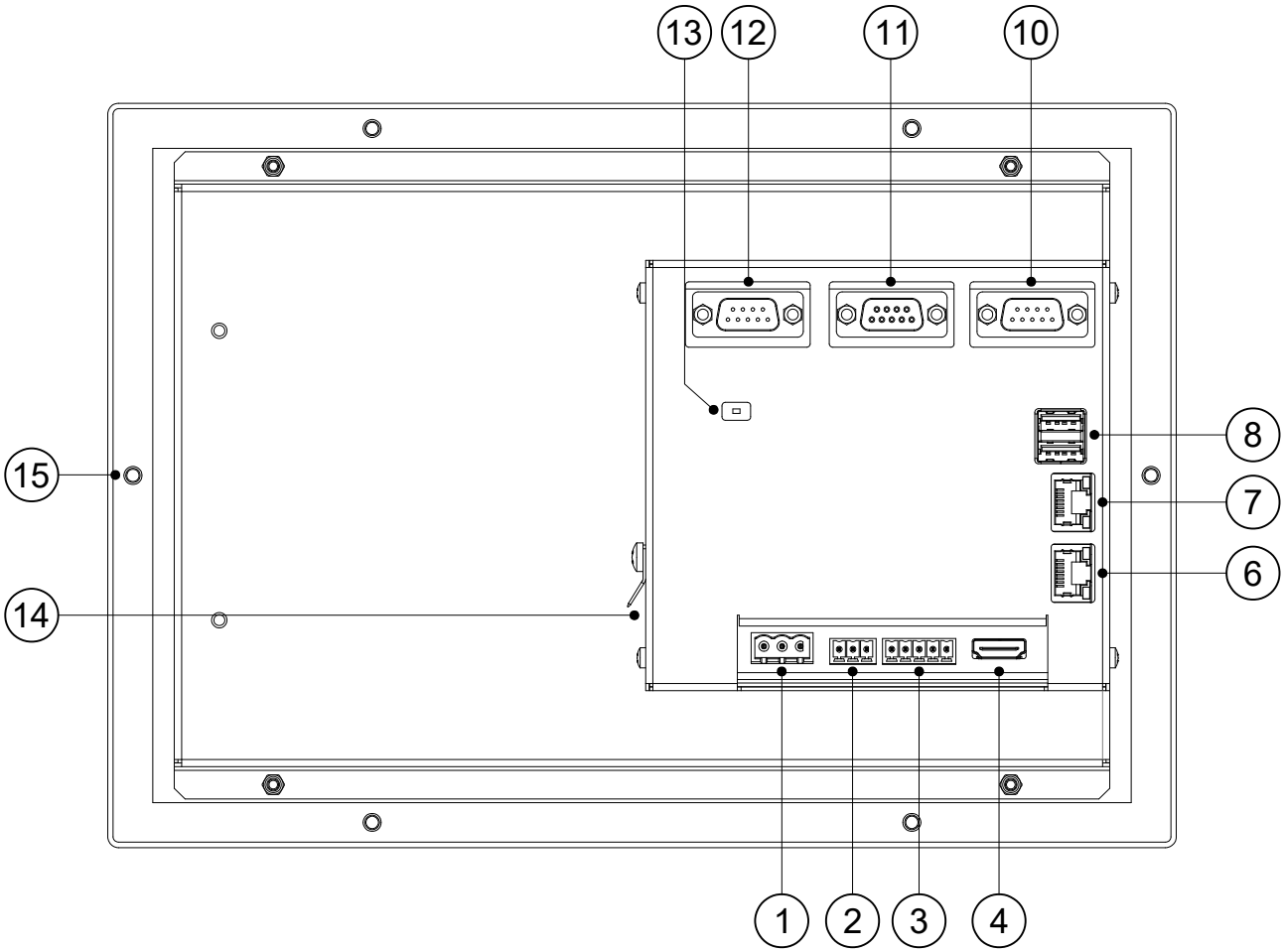
3.4 MicroNC CPU_ENC_I0_STEP





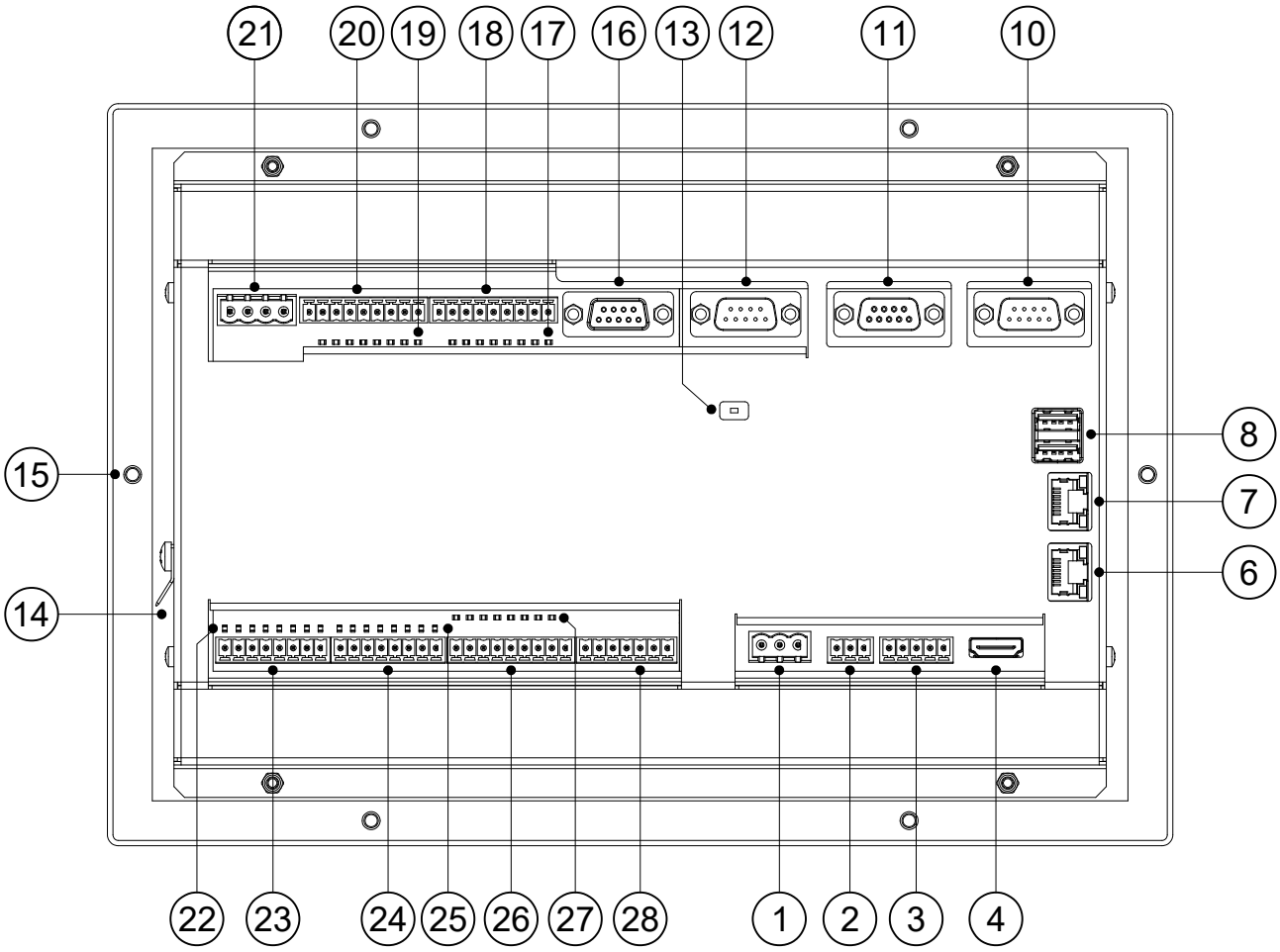
1) Power Connector.
2) Analog Outputs Connector **(*)**.
3) I/O Connector **(*)**.
4) HDMI Port.
5) Presetting for Cable Clamp.
6) Ethernet1 Port.
7) Ethernet2 Port.
8) USB 2.0 Ports.
9) Slotted Hole.
10) CAN Connector.
11) Encoder 1 **(*)**.
12) RS232/422/485 Serial Port.
13) Not used in this configuration.
14) Grounding faston.
15) Not used in this configuration.
16) Encoder 2.
17) Digital Input LEDs [1-8].
18) Digital Inputs Connector [1-8].
19) Digital Input LEDs [9-16].
20) Digital Inputs Connector [9-16].
21) Outputs Power Connector.
22) Digital Output LEDs [1-8].
23) Digital Outputs Connector [1-8].
24) Digital Outputs Connector [9-16].
25) Digital Output LEDs [9-16].
26) Digital Inputs Connector [17-24].
27) Digital Input LEDs [17-24].
28) Analog Inputs Connector.
29) Digital Output LEDs [17-24].
30) Digital Outputs Connector [17-24].
31) Step Outputs Connector.
32) Encoder 3.. 6.
33) WD LED.
34) Digital Inputs Connector [25-32].
35) Digital Input LEDs [25-32].

3.5 MicroNC Video_CPU_ENC description



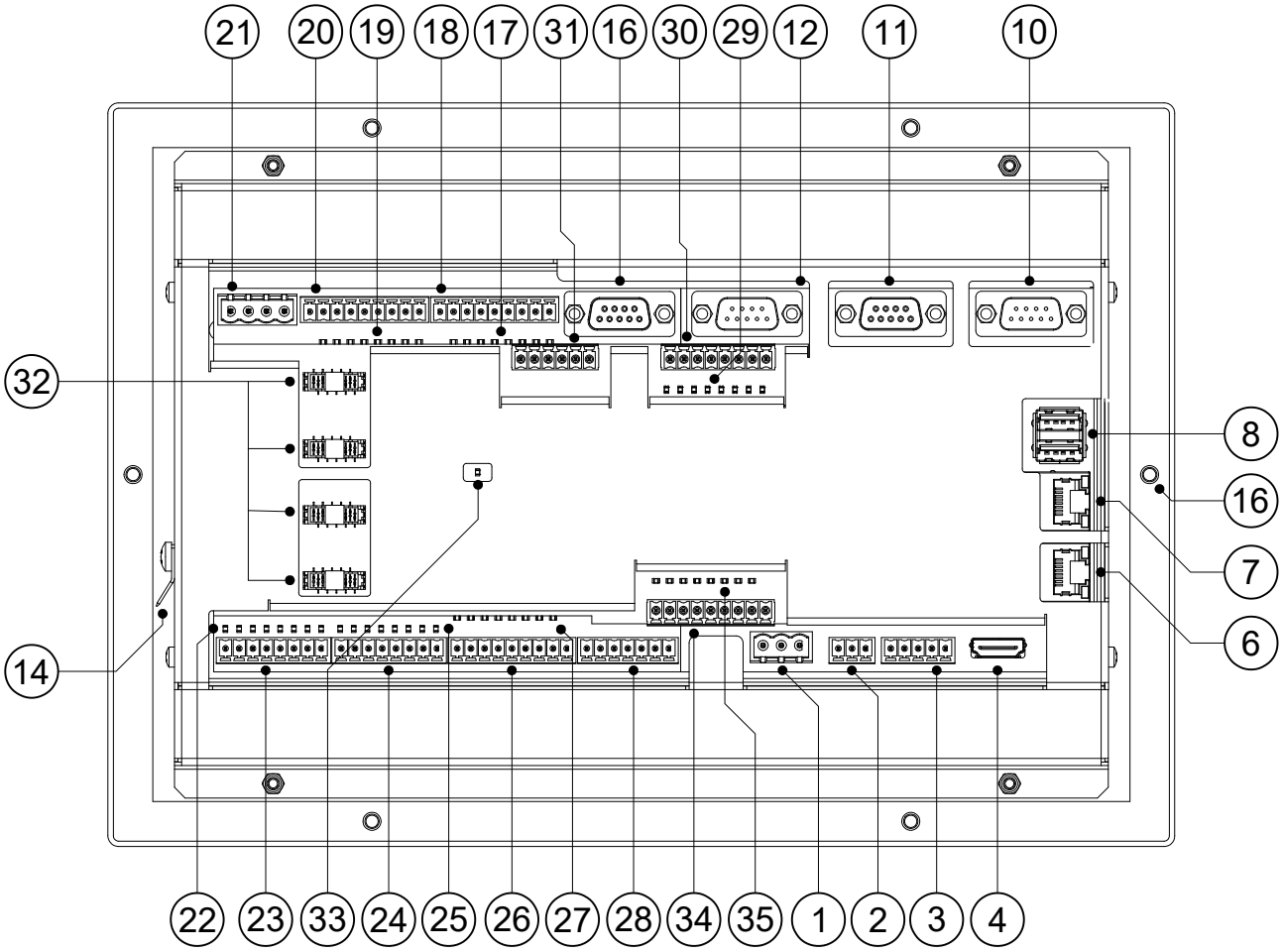
1) Power Connector.
2) Analog Outputs Connector **(*).**
3) I/O Connector **(*).**
4) HDMI Port.
5) Not used in this configuration.
6) Ethernet1 Port.
7) Ethernet2 Port.
8) USB 2.0 Ports.
9) Not used in this configuration.
10) CAN Connector.
11) Encoders 1 **(*).**
12) RS232/422/485 Serial Port.
13) Power-ON LED.
14) Grounding faston.
15) Threaded Inserts.

3.6 MicroNC Video_CPU_ENC_I0 description



1) Power Connector.
2) Analog Outputs Connector **(*).**
3) I/O Connector **(*).**
4) HDMI Port.
5) Not used in this configuration.
6) Ethernet1 Port.
7) Ethernet2 Port.
8) USB 2.0 Ports.
9) Not used in this configuration.
10) CAN Connector.
11) Encoders 1 **(*).**
12) RS232/422/485 Serial Port.
13) Power-ON LED.
14) Grounding faston.
15) Threaded Inserts.
16) Encoders 2.
17) Digital Input LEDs [1-8].
18) Digital Inputs Connector [1-8].
19) Digital Input LEDs [9-16].
20) Digital Inputs Connector [9-16].
21) Outputs Power Connector.
22) Digital Output LEDs [1-8].
23) Digital Outputs Connector [1-8].
24) Digital Outputs Connector [9-16].
25) Digital Output LEDs [9-16].
26) Digital Inputs Connector [17-24].
27) Digital Input LEDs [17-24].
28) Analog Inputs Connector.

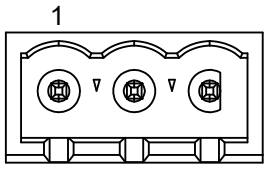
3.7 MicroNC Video_CPU_ENC_I0 description



1) Power Connector.
2) Analog Outputs Connector **(*)**.
3) I/O Connector **(*)**.
4) HDMI Port.
5) Not used in this configuration.
6) Ethernet1 Port.
7) Ethernet2 Port.
8) USB 2.0 Ports.
9) Not used in this configuration.
10) CAN Connector.
11) Encoder 1 **(*)**.
12) RS232/422/485 Serial Port.
13) Not used in this configuration.
14) Grounding faston.
15) Threaded Inserts.
16) Encoder 2.
17) Digital Input LEDs [1-8].
18) Digital Inputs Connector [1-8].
19) Digital Input LEDs [9-16].
20) Digital Inputs Connector [9-16].
21) Outputs Power Connector.
22) Digital Output LEDs [1-8].
23) Digital Outputs Connector [1-8].
24) Digital Outputs Connector [9-16].
25) Digital Output LEDs [9-16].
26) Digital Inputs Connector [17-24].
27) Digital Input LEDs [17-24].
28) Analog Inputs Connector.
29) Digital Output LEDs [17-24].
30) Digital Outputs Connector [17-24].
31) Step Outputs Connector.
32) Encoder 3.. 6.
33) WD LED.
34) Digital Inputs Connector [25-32].
35) Digital Input LEDs [25-32].

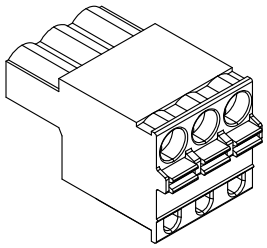
3.7.1 Power Connector

Basic socket for printed circuits, straight male (MD), 3 poles, 5 pitch.



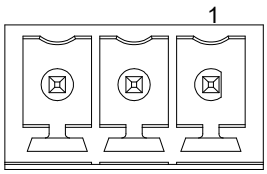
Pin	Signal
1	+24 Vdc
2	GND
3	EARTH

REMOVABLE CONNECTOR REQUIRED : PUSH-IN spring female connector, 3 poles, pitch 5.



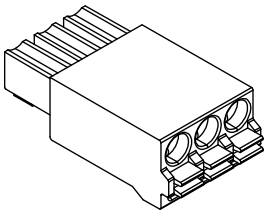
3.7.2 Analog Outputs Connector

Basic socket for printed circuits, straight male (MD), 3 poles, 3,81 pitch.



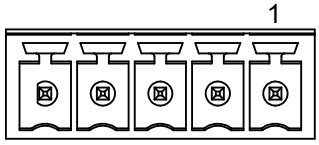
Pin	Signal
1	Vout_an
2	GND
3	EARTH

REMOVABLE CONNECTOR REQUIRED: PUSH-IN spring female connector, 3 poles, pitch 3,81.



3.7.3 I/O Connector

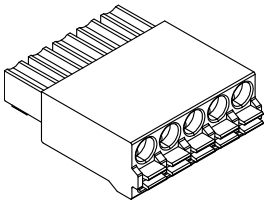
Basic socket for printed circuits, straight male (MD), 5 poles, 3,81 pitch.



Pin	Signal
1	+24 Vdc (insulated)
2	GND (insulated)
3	FAST_OUT
4	FAST_IN
5	EARTH

NOTE: if you don't want to use the opto-isolation, you can use the power supplies on the board.

REMOVABLE CONNECTOR REQUIRED: PUSH-IN spring female connector, 5 poles, pitch 3,81.

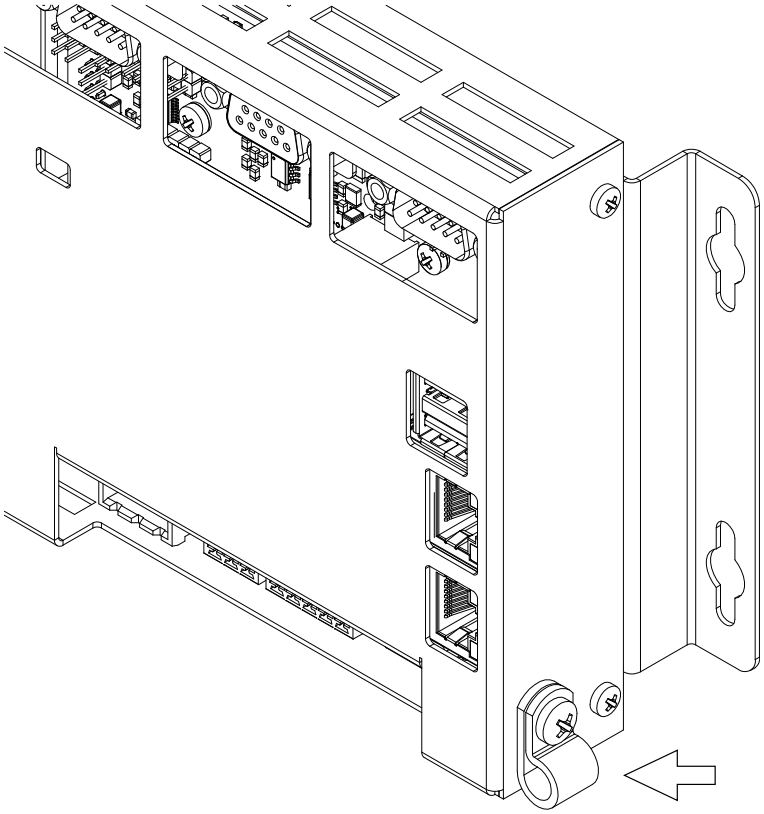


3.7.4 HDMI Port

The board makes HDMI video output available for connecting a display.

3.7.5 Presetting for cable clamp

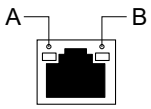
The cable clamp presetting is used in configurations without a dashboard, where a video connection is required.



Use a “P” cable clamp of the appropriate diameter for the video cable being used, securing it to the hardware with an M4x8 screw and notched washer.

3.7.6 Ethernet1 Port

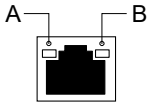
RJ45 connector that makes a 10/100/1000 Mb/sec ETHERNET port available.
On the sides of the 2 connectors there are 2 diagnostic LEDs. The table indicates how to interpret the status of the LEDs.



LED	Status	Meaning
A	OFF	LAN not connected
	ON	LAN connected
B	Blinking Orange Light	Data Transmission

3.7.7 Ethernet2 Port

RJ45 connector that make a 100 Mb/sec ETHERNET port available, used for the standard EtherCAT connection.



LED	Status	Meaning
A	Green ON	LAN connected 100Mb
	Blinking Green	LAN connected 100Mb-data transmission
B	Orange ON	LAN connected 1000Mb
	Blinking Orange	LAN connected 1000Mb-data transmission

3.7.8 USB 2.0 Ports

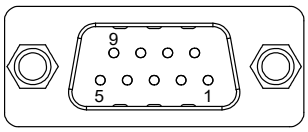
Connector with 4 USB 2.0 ports available.

3.7.9 Slotted Hole

Slot for fixing the box inside the electrical cabinets using an M4 screw.
For installation, refer to the dimensions and installation paragraph.

3.7.10 CAN Connector

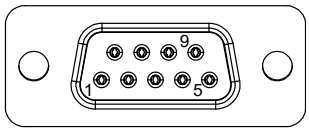
DB9 D-SUB socket male connector, for connecting the module to the CAN cable.



Pin	Signal
1	N.C.
2	CAN L
3	CAN GND
4	N.C.
5	N.C.
6	N.C.
7	CAN H
8	N.C.
9	N.C.
FIX1/2	EARTH

3.7.11 Encoder 1

DB9 D-SUB socket female connector, for encoder signals.



Pin	Signal
1	ENC1A
2	ENC1B
3	ENC1Z
4	VENC
5	GND
6	/ENC1A
7	/ENC1B
8	/ENC1Z
9	N.C.
FIX1/2	EARTH

3.7.12 RS232/422/485 Serial Port

The connector makes the COM1 serial port available. The serial port can be configured to operate in RS232, RS422 and RS485 modes via jumpers.

Pin	RS232	RS422	RS485
1	N.C.	TX-	RX/TX-
2	RXD, Receive Data	TX+	RX/TX+
3	TXD, Transmit Data	RX+	N.C.
4	N.C.	RX-	N.C.
5	GND	GND	GND
6	N.C.	N.C.	N.C.
7	RTS, Request To Send	N.C.	N.C.
8	CTS, Clear To Send	N.C.	N.C.
9	EARTH	EARTH	EARTH

3.7.13 Power-ON LED

Blue diagnostic LED, which signals the presence of power supply to the module.

3.7.14 Grounding faston.

Contact for connecting the metal housing of the box to earth potential.

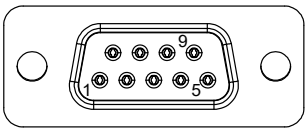
Earthing the metal casing is a fundamental operation for the operator's safety.

3.7.15 Threaded Inserts

On the dashboard there are 6 M4 threaded inserts for fixing the equipment in the electrical cabinet.

3.7.16 Encoder 2.

DB9 D-SUB socket connector, female, for encoder signals.



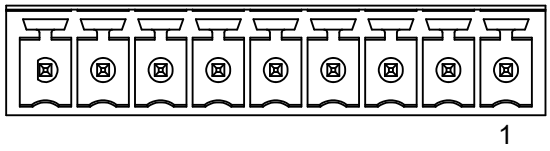
Pin	Signal
1	ENC1A
2	ENC1B
3	ENC1Z
4	VENC
5	GND
6	/ENC1A
7	/ENC1B
8	/ENC1Z
9	N.C.
FIX1/2	EARTH

3.7.17 Digital Input LEDs [1-8]

Green Diagnostic LEDs which signal the activation of the corresponding inputs 1-8.

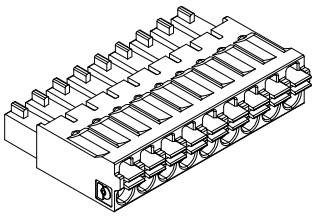
3.7.18 Digital Inputs Connector [1-8]

Basic socket for printed circuits, straight male (MD), 9 poles, pitch 3.81.



Pin	Signal
1	DIGITAL INPUT 1
2	DIGITAL INPUT 2
3	DIGITAL INPUT 3
4	DIGITAL INPUT 4
5	DIGITAL INPUT 5
6	DIGITAL INPUT 6
7	DIGITAL INPUT 7
8	DIGITAL INPUT 8
9	GND PWR

REMOVABLE CONNECTOR REQUIRED: PUSH-IN spring female connector, 9 poles, pitch 3.81.

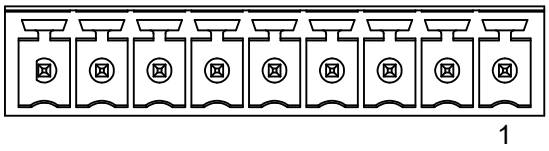


3.7.19 Digital Input LEDs [9-16]

Green Diagnostic LEDs which signal the activation of the corresponding inputs 9-16.

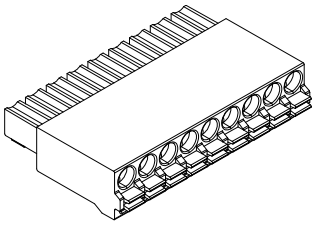
3.7.20 Digital Inputs Connector [9-16]

Basic socket for printed circuits, straight male (MD), 9 poles, pitch 3.81.



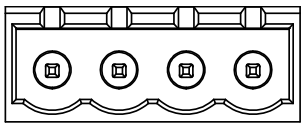
Pin	Signal
1	DIGITAL INPUT 9
2	DIGITAL INPUT 10
3	DIGITAL INPUT 11
4	DIGITAL INPUT 12
5	DIGITAL INPUT 13
6	DIGITAL INPUT 14
7	DIGITAL INPUT 15
8	DIGITAL INPUT 16
9	GND PWR

REMOVABLE CONNECTOR REQUIRED: PUSH-IN spring female connector, 9 poles, pitch 3.81.



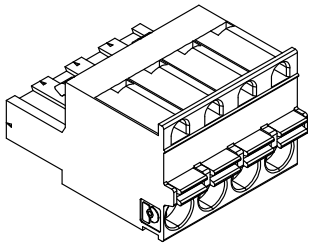
3.7.21 Digital Outputs Power Connector

PCB header, straight male (MD), 4 poles, pitch 5.



Pin	Signal
1-2	+24 Vdc PWR
3-4	GND PWR

REMOVABLE CONNECTOR REQUIRED: PUSH-IN spring female connector, 4 poles, pitch 5.

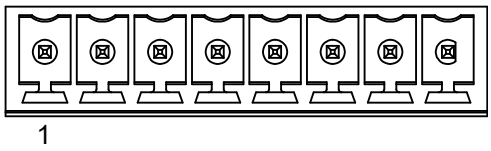


3.7.22 Digital Output LEDs [1-8]

Red Diagnostic LEDs which signal the activation of the corresponding outputs 1-8.

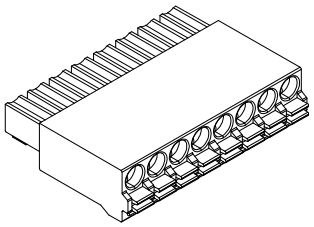
3.7.23 Digital Outputs Connector [1-8]

Basic socket for printed circuits, straight male (MD), 8 poles, pitch 3.81.



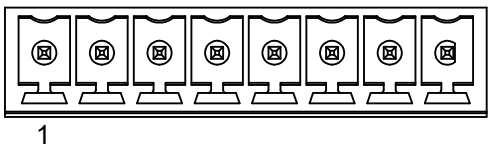
Pin	Signal
1	DIGITAL OUTPUT 1
2	DIGITAL OUTPUT 2
3	DIGITAL OUTPUT 3
4	DIGITAL OUTPUT 4
5	DIGITAL OUTPUT 5
6	DIGITAL OUTPUT 6
7	DIGITAL OUTPUT 7
8	DIGITAL OUTPUT 8

REMOVABLE CONNECTOR REQUIRED: PUSH-IN spring female connector, 9 poles, pitch 3.81.



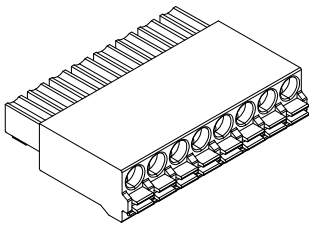
3.7.24 Digital Outputs Connector [9-16]

Basic socket for printed circuits, straight male (MD), 8 poles, pitch 3.81.



Pin	Signal
1	DIGITAL OUTPUT 9
2	DIGITAL OUTPUT 10
3	DIGITAL OUTPUT 11
4	DIGITAL OUTPUT 12
5	DIGITAL OUTPUT 13
6	DIGITAL OUTPUT 14
7	DIGITAL OUTPUT 15
8	DIGITAL OUTPUT 16

REMOVABLE CONNECTOR REQUIRED: PUSH-IN spring female connector, 9 poles, pitch 3.81.

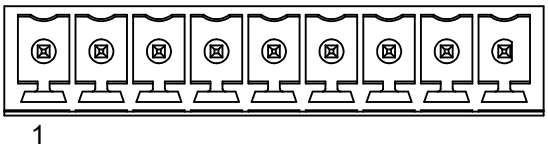


3.7.25 Digital Output LEDs [9-16]

Red Diagnostic LEDs which signal the activation of the corresponding outputs 9-16.

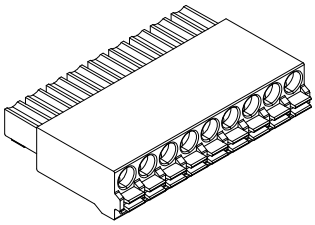
3.7.26 Digital Inputs Connector [17-24]

Basic socket for printed circuits, straight male (MD), 9 poles, pitch 3.81.



Pin	Signal
1	DIGITAL INPUT 17
2	DIGITAL INPUT 18
3	DIGITAL INPUT 19
4	DIGITAL INPUT 20
5	DIGITAL INPUT 21
6	DIGITAL INPUT 22
7	DIGITAL INPUT 23
8	DIGITAL INPUT 24
9	GND PWR

REMOVABLE CONNECTOR REQUIRED: PUSH-IN spring female connector, 9 poles, pitch 3.81.

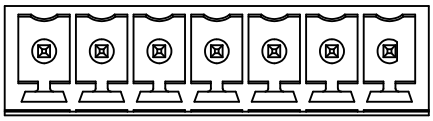


3.7.27 Digital Input LEDs [17-24]

Green Diagnostic LEDs which signal the activation of the corresponding 17-24.

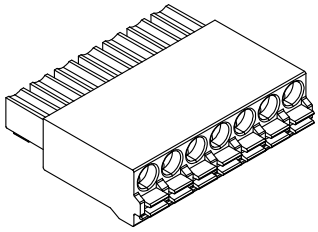
3.7.28 Analog Inputs Connector

Basic socket for printed circuits, straight male (MD), 7 poles, pitch 3.81.



Pin	Signal
1	+12 Vdc
2	IN1+
3	IN1-
4	IN2+
5	IN2-
6	GND
7	EARTH

REMOVABLE CONNECTOR REQUIRED: PUSH-IN spring female connector, 7 poles, pitch 3.81.

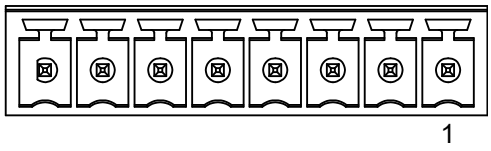


3.7.29 Digital Output LEDs [17-24]

Red Diagnostic LEDs which signal the activation of the corresponding outputs 17-24.

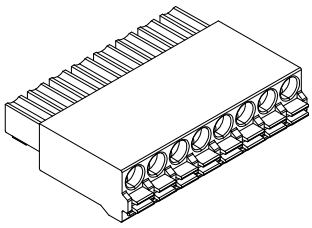
3.7.30 Digital Outputs Connector [17-24]

Basic socket for printed circuits, straight male (MD), 8 poles, pitch 3.81.



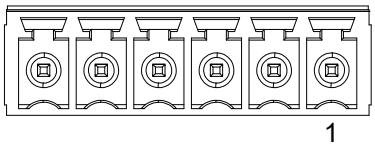
Pin	Signal
1	DIGITAL OUTPUT 17
2	DIGITAL OUTPUT 18
3	DIGITAL OUTPUT 19
4	DIGITAL OUTPUT 20
5	DIGITAL OUTPUT 21
6	DIGITAL OUTPUT 22
7	DIGITAL OUTPUT 23
8	DIGITAL OUTPUT 24

REMOVABLE CONNECTOR REQUIRED: PUSH-IN spring female connector, 8 poles, pitch 3.81.



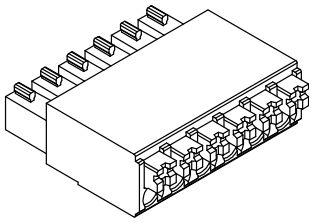
3.7.31 Step Outputs Connector

Basic socket for printed circuits, straight male (MD), 6 poles, pitch 3.81.



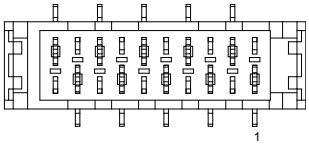
Pin	Signal
1	PWM1
2	PWM2
3	GND
4	PWM3
5	PWM4
6	GND

REMOVABLE CONNECTOR REQUIRED: PUSH-IN spring female connector, 6 poles, pitch 3.81.



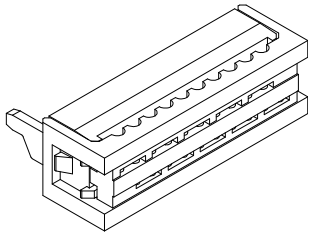
3.7.32 Encoders 3.. 6

Miniature female connector SMT, with latch and polarization, 10 pins, 2 row, pitch 2.54 for encoder signals.



Pin	Signal
1	ENC[3..6]A
2	ENC[3..6]B
3	ENC[3..6]Z
4	VENC
5	GND
6	/ENC[3..6]A
7	/ENC[3..6]B
8	/ENC[3..6]Z
9	EARTH
10	N.C.

REMOVABLE CONNECTOR REQUIRED: IDC male connector, 10 pins, 2 row, pitch 2.54.

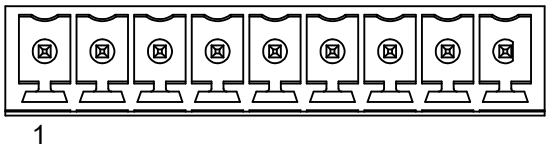


3.7.33 WD LED

Green Diagnostic LEDs which blink in according to printed circuit board status.

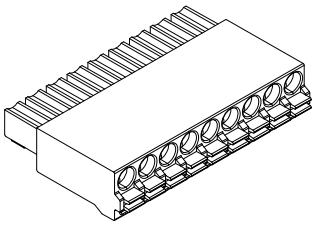
3.7.34 Digital Inputs Connector [25-32]

Basic socket for printed circuits, straight male (MD), 9 poles, pitch 3.81.



Pin	Signal
1	DIGITAL INPUT 25
2	DIGITAL INPUT 26
3	DIGITAL INPUT 27
4	DIGITAL INPUT 28
5	DIGITAL INPUT 29
6	DIGITAL INPUT 30
7	DIGITAL INPUT 31
8	DIGITAL INPUT 32
9	GND PWR

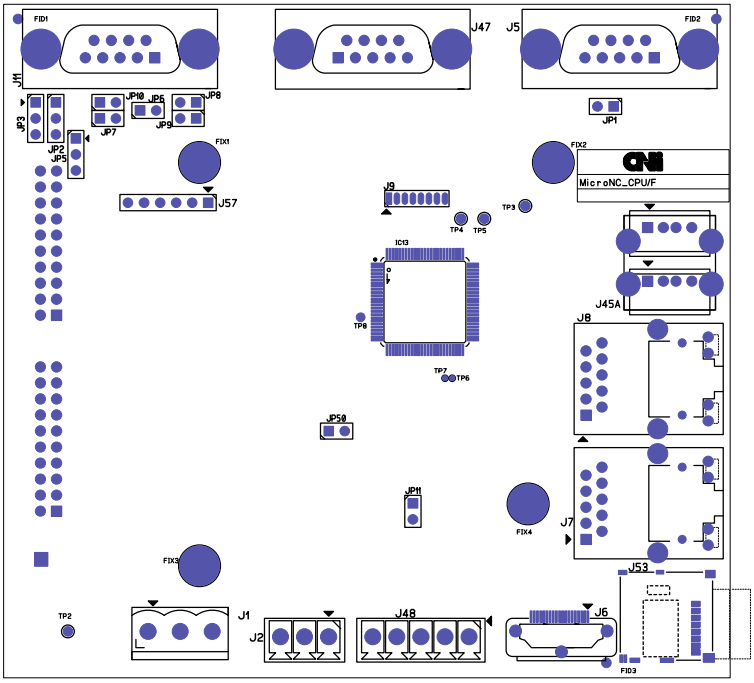
REMOVABLE CONNECTOR REQUIRED: PUSH-IN spring female connector, 9 poles, pitch 3.81.



3.7.35 Digital Input LEDs [25-32]

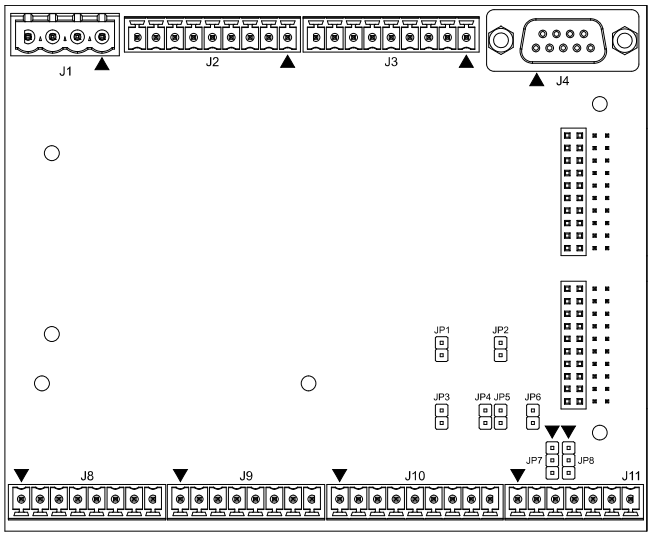
Green Diagnostic LEDs which signal the activation of the corresponding 25-32.

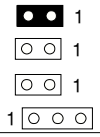
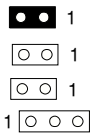
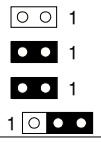
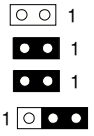
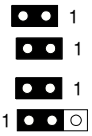
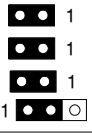
3.8 MicroNc CPU_ENC board JUMPER Configuration:



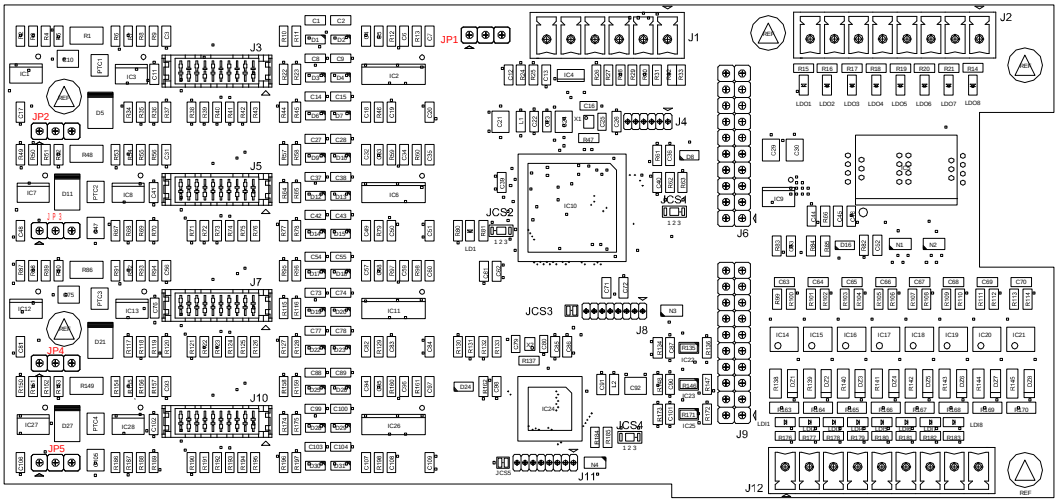
MEANING	JUMPER SELECTION	JUMPER SETTING
RS232 Selection	JP2 - (2-3) JP3 - (2-3) JP5 - (2-3) JP6 - OFF JP10 - OFF JP8-OFF JP9- OFF	1 ○ ●● ○○ 1
RS422 Selection	JP2 - (1-2) JP3 - (1-2) JP5 - (1-2) JP6 - OFF JP10 - OFF JP8 - OFF JP9 - OFF	1 ●● ○ ○○ 1
RS485 Selection	JP2 - (1-2) JP3 - (1-2) JP5 - (1-2) JP6 - ON JP10 - ON JP8 - ON JP9 - ON	1 ●● ○ ●● 1
RS422/485 Network Termination	JP7 -ON network terminated JP7- OFF network not terminated	●● 1 ○○ 1
CAN Network Termination	JP1 -ON network terminated JP1- OFF network not terminated	●● 1 ○○ 1

3.9 MicroNc IO board JUMPER Configuration:



MEANING	JUMPER SELECTION	JUMPER SETTING
Input [-10,+10]V	ANALOG INPUT 1	
	JP1 – ON JP3-OFF JP4- OFF JP7 - OFF	
	ANALOG INPUT 2	
	JP2 – ON JP5-OFF JP6- OFF JP8 - OFF	
Input [0,20]mA	ANALOG INPUT 1	
	JP1 – OFF JP3- ON JP4- ON JP7 – (2-3)	
	ANALOG INPUT 2	
	JP2 – OFF JP5- ON JP6- ON JP8 – (2-3)	
Input [-20,20]mA	ANALOG INPUT 1	
	JP1 – ON JP3- ON JP4- ON JP7 - (1-2)	
	ANALOG INPUT 2	
	JP2 – ON JP5- ON JP6- ON JP8 - (1-2)	

3.10 MicroNc STEPPER board JUMPER Configuration:



MEANING	JUMPER SELECTION		JUMPER SETTING
OUT PWM	JP1 – (1-2)	5Vdc	1 ●●○
	JP1 – (2-3)	12Vdc	1 ○●●
POWER SUPPLY ENCODER	JP2 – (1-2)	5Vdc	1 ●●○
	JP2 – (2-3)	12Vdc	1 ○●●
	JP3 – (1-2)	5Vdc	1 ●●○
	JP3 – (2-3)	12Vdc	1 ○●●
	JP4 – (1-2)	5Vdc	1 ●●○
	JP4 – (2-3)	12Vdc	1 ○●●
	JP5 – (1-2)	5Vdc	1 ●●○
	JP5 – (2-3)	12Vdc	1 ○●●

4 Technical Specification

4.1 Technical DATA MicroNc system

Technical Data	
Dimensions	**CPU_ENC/CPU/CPU_2CAN**
Device (WxHxD) [mm]	159x32.2x119.7
Weight [kg]	0.560
Mounting Type	Pannel type
Dimensions	**CPU_ENC_IO/CPU_IO**
Device (WxHxD)[mm]	276x47.2x100
Weight [kg]	0.950
Mounting Type	Pannel type
Dimensions	**CPU_ENC_IO_STEPPER/CPU_IO_STEPPER**
Device (WxHxD)[mm]	260X39.2X100
Weight [kg]	0.067
Mounting Type	Pannel type
Dimensions	**Video_CPU_ENC/Video_CPU**
Device (WxHxD) [mm]	290x52.2x207
Weight [kg]	1.7
Mounting Type	6 M4 male insert
Dimensions	**Video_CPU_ENC_IO/Video_CPU_IO**
Device (WxHxD)[mm]	290x52.2x207
Weight [kg]	2.1
Mounting Type	6 M4 male insert
Dimensions	**Panel CNC 10” COMPACT STEPPER**
Device (WxHxD)[mm]	290x52.2x207
Weight [kg]	2.2
Mounting Type	6 M4 male insert
Controller	
Main Processor	iMX8MPLUS
Memory	1 Gb
Flash Memory	8 Gb
Secondary Processor	STM32F405
Memory	112 Kb
Flash Memory	1 Mb

Technical Data	
Display	
Display	TFT color display
Screen Diagonal	10.1”
Active display area	216.96 (H) x 135.6 (V)
Resolution (pixels format)	RGB 1280 x 800
Support Color	16.7M
White Luminance (led)	800 cd/m^2
Half-life of backlight	normally 50KHr
Electrical Interface (Logic)	LVDS
Touch	4 wired resistive
I/O Interface	
COM	1 RS232/422/485
USB	2 USB 2.0 (host socket type A)
ETHERNET	■ 1 RJ45 10/100/1000 Mb/sec ■ 1 RJ45 100 Mb/sec
VIDEO PORT	■ HDMI ■ LVDS (local display)
CAN	1 CAN PORT D-SUB male 9 pin
ENCODER	■ 1 ENCODER CPU_ENC ■ 2 ENCODER CPU_ENC_IO ■ 6 ENCODER CPU_ENC_IO_STEPPER
Power supply	
Rated value	24 Vdc ± 20%
Operating current	300mA (CPU_ENC_IO)
Startup current	1A
Connector Type	Push-in spring connection
Protection	Inversion, electrostatic discharge (ESD), overvoltage
Analog Output	
Resolution	12 bit
Range	± 10 Vdc
Current max	10 mA
Connector type	Push-in spring connection
Fast Output	
Power supply	+24 Vdc (isolated for fast_in, fast_out)
Current Max	1A
Ton	60usec
Toff	5 msec max

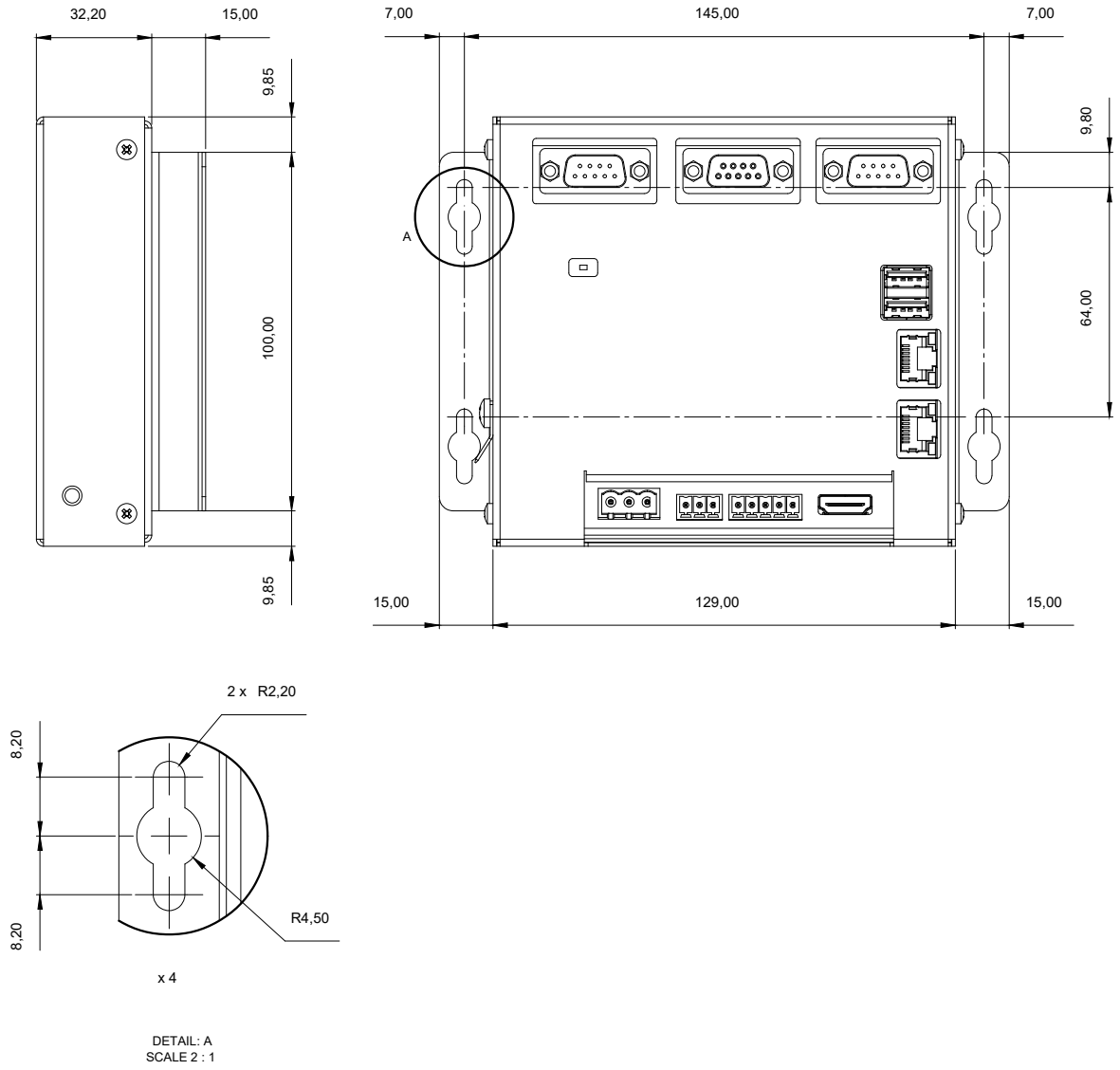
Technical Data	
Connector Type	Push-in spring connection
Protection	Inversion,opto-isolated output,overvoltage, current limit and short circuit protection.
Fast Input	
Nominal value	+24 Vdc
Protection	opto-isolated
Ton	4 usec
Toff	18 usec
Connector Type	Push-in spring connection
CAN	
Transmission speed	Up 1Mb/s
Test Voltage	1500V
Connector Type	D-SUB male 9 pin
Encoder	
Number of Input	2
Type	■ Incremental Push-Pull 5 Vdc ■ Incremental Open Collector 5 Vdc ■ Incremental Line Driver 5 Vdc
Input Frequency	500 KHz
Power supply	5 Vdc ±5%
Current for Encoder (max)	100 mA max
Reporting Anomalies	short circuit, connection encoder
Connector Type	D-SUB female 9 pin
Encoder	
Number of Input	4
Type	■ Incremental Push-Pull ■ Incremental Open Collector ■ Incremental Line Driver
Input Frequency	500 KHz
Power supply	5/12 Vdc ±5%
Current for Encoder (max)	100 mA max
Reporting Anomalies	short circuit, connection encoder
Connector Type	Adapter for D-SUB female 9 pin
Power supply out	
Rated value	24Vdc ± 20%
Operating current	100 mA
Max current	9A (all outputs and input on)

Technical Data	
Digital Input	
Number of inputs	24 negative common
Nominal value	+24 Vdc
Input voltage for signal "0"	0...16V
Input voltage for signal "1"	17...32V
Frequency range	10...125 Hz
Imax at Vin=24	10 mA
Input resistance	50 KΩ
Programmable filter	10us,1ms,3.2ms,10ms
Input delay of "0" to "1"	50 us (with internal filter 10 us)
Input delay of "1" to "0"	50us (with internal filter 10 us)
Status information diagnostics	Green led
Connector type	Push-in spring connection
Protection	Galvanic isolation, under voltage detection
Digital Input	
Number of inputs	8
Nominal value	+24 Vdc
Input voltage for signal "0"	0...16V
Input voltage for signal "1"	17...32V
Connector type	Push-in spring connection
Protection	Optoisolation
Digital output	
Number of outputs	16
Type	static
Vout	+24 Vdc (Rated value of Power supply out)
Output current at signal "1", rated value	0.5A
Output delay of "0" to "1"	60 us (max 120 us)
Output delay of "1" to "0"	120 us (max 170 us)
Status information diagnostics	Red led
Output resistance	200 mΩ
'SAFE' configuration	expected
Connector type	Push-in spring connection
Protection	Outputs individually protected again overload,over temperature, short circuit,Galvanic isolation.
Reporting anomalies	Overload greater than 4A each group of 8 outputs

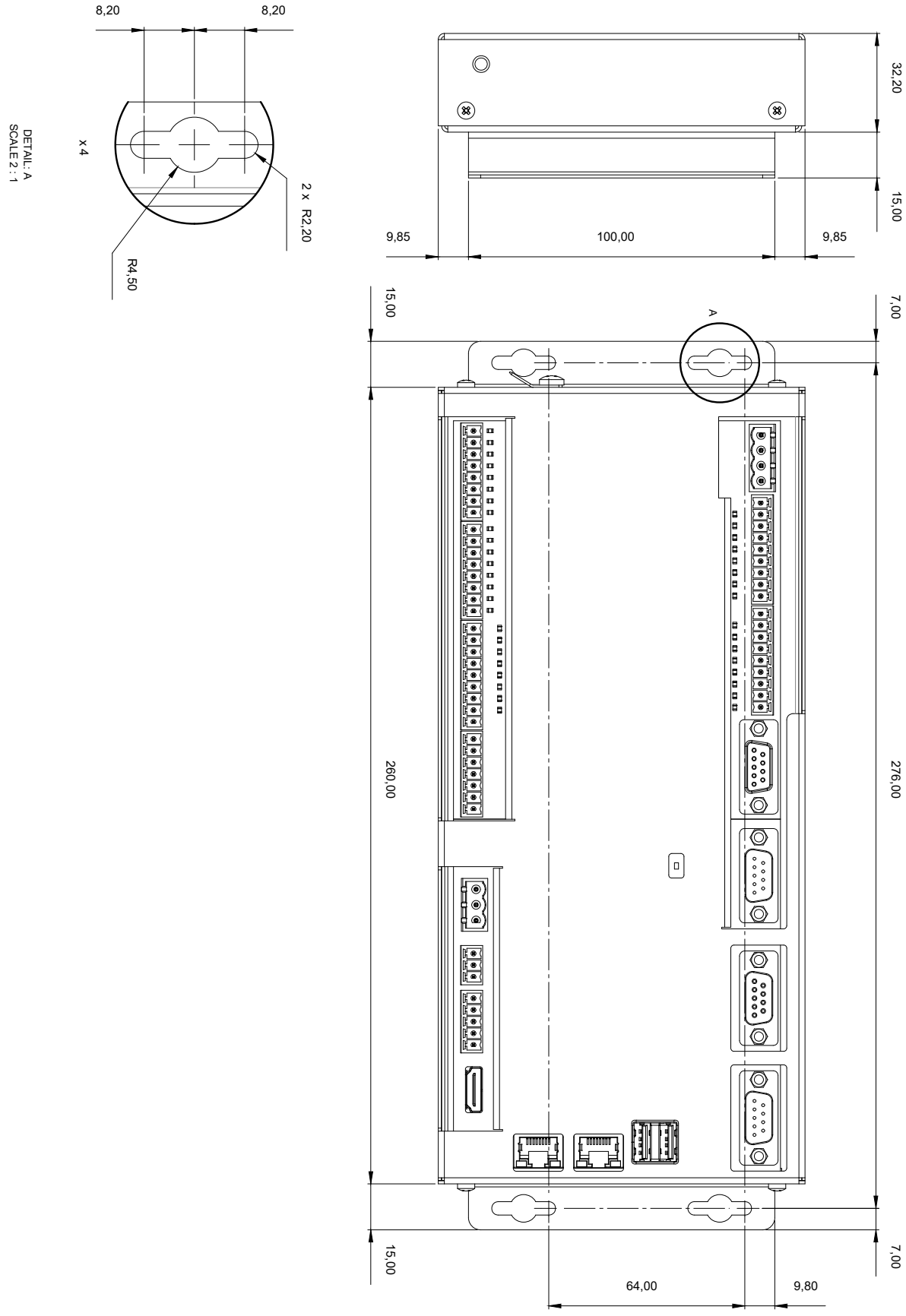
Technical Data	
Analog input	
Number of inputs	2
Rated voltage	-10...+10V
Rated current	0...+20mA, -20...+20mA
Selection	Througt jumper
Input resistance with voltage input	100KΩ
Input resistance with current input	500Ω (±20mA) 250Ω (0..20mA)
Resolution in bit	12 bit
Out voltage	+12 Vdc
Current Max	150 mA
Protection	Not foreseen
Stepper output	
Type	PWM
Vout	+5Vdc/ +12 Vdc
Connector type	Push-in spring connection
General data	
Ambient conditions, operation:	0...50°C, 10...95% rel. air humidity, without condensing
Ambient conditions, storage/transport	-20...60°C, 10...95% rel. air humidity, without condensing
Legislation reference	Electromagnetic CE compatibility Emission standard for industrial environments CEI EN 61000-6-4 Immunity for industrial environments CEI EN 61000-6-2 Information technology equipment Safety CEI EN 60950
Protection degree	IP30
Order Code	--
Country of origin	Assembled in Italy

4.2 Dimension

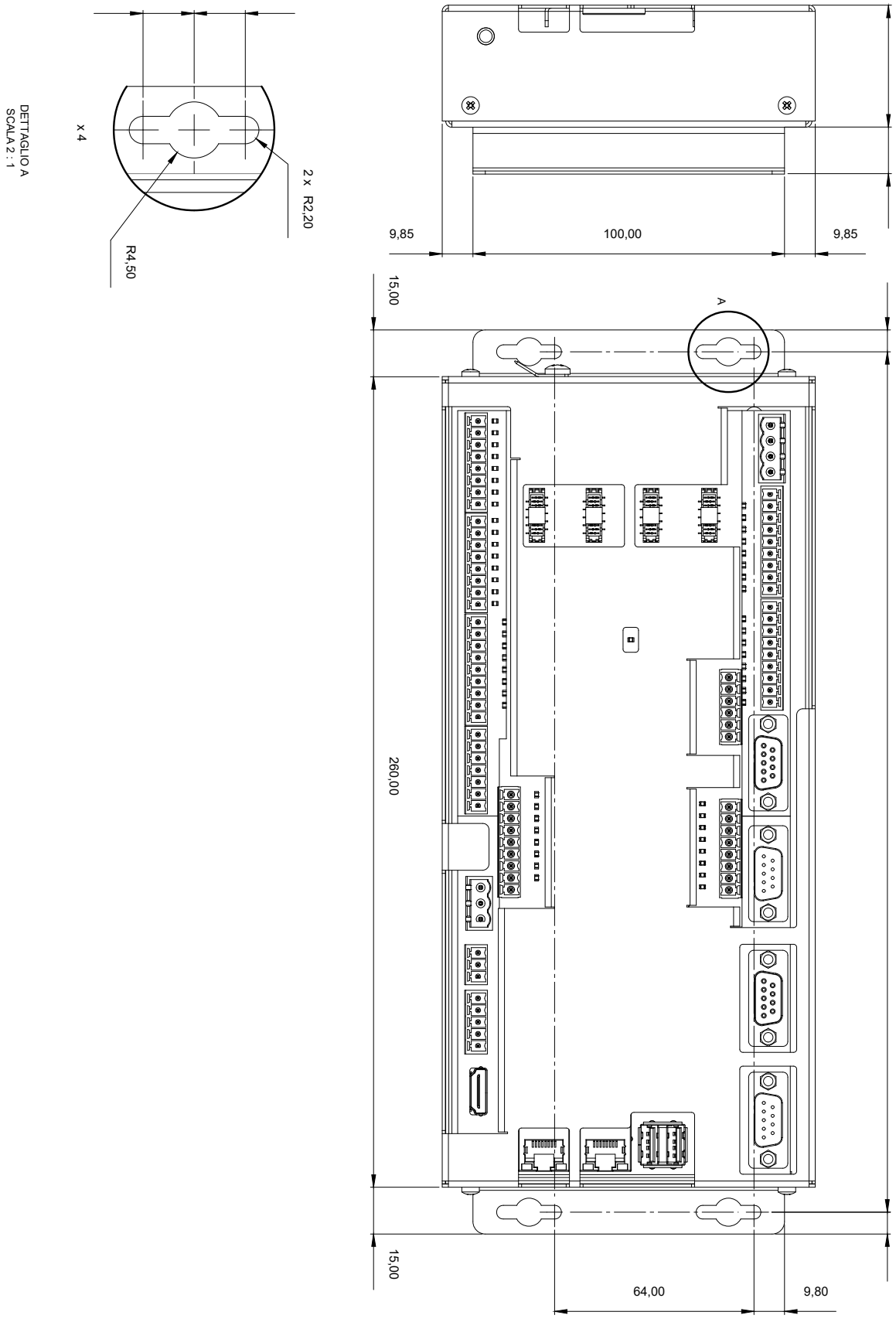
4.2.1 MicroNc CPU_ENC/CPU/CPU_2CAN



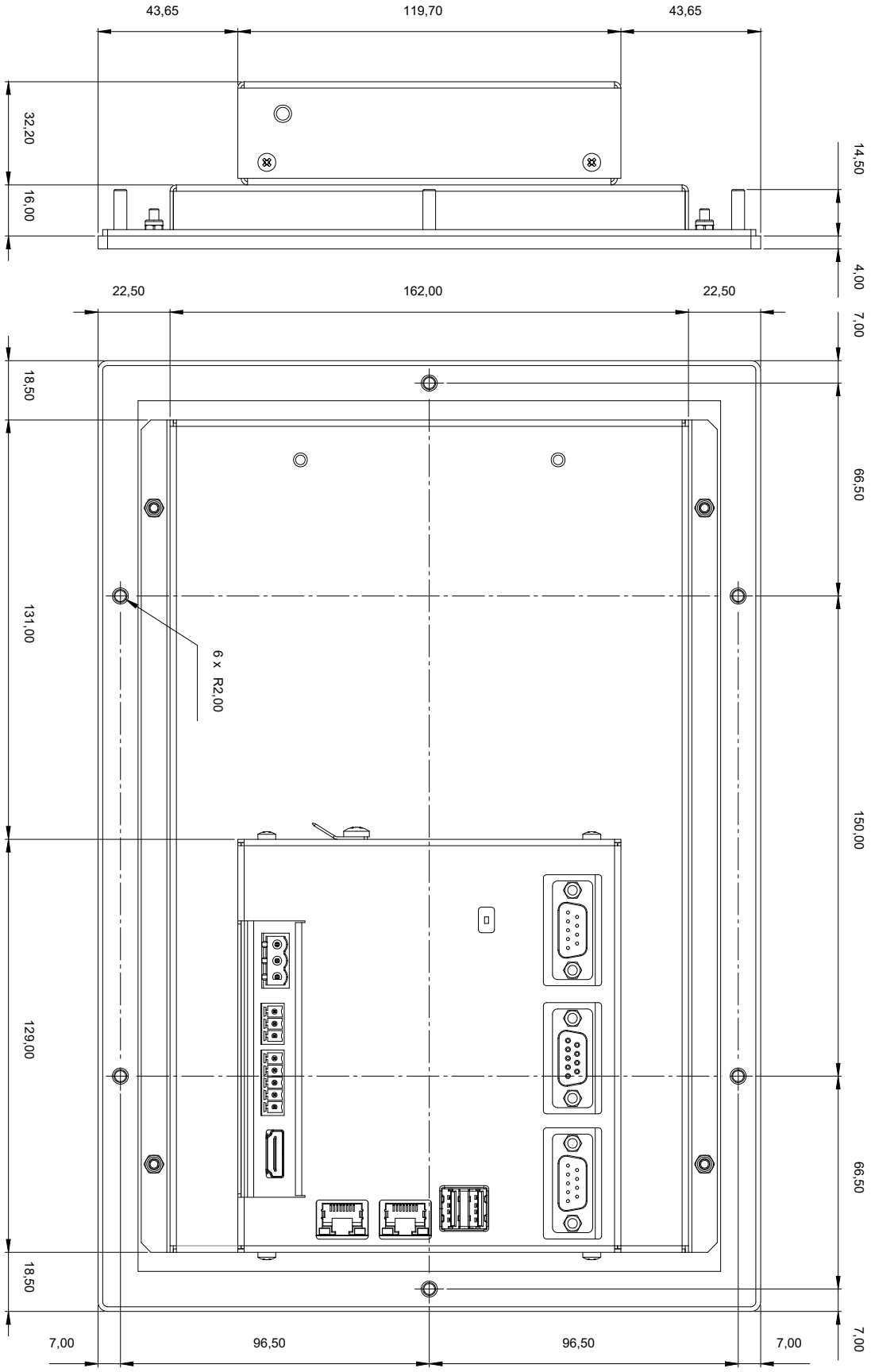
4.2.2 MicroNC CPU_ENC_IO/CPU_IO



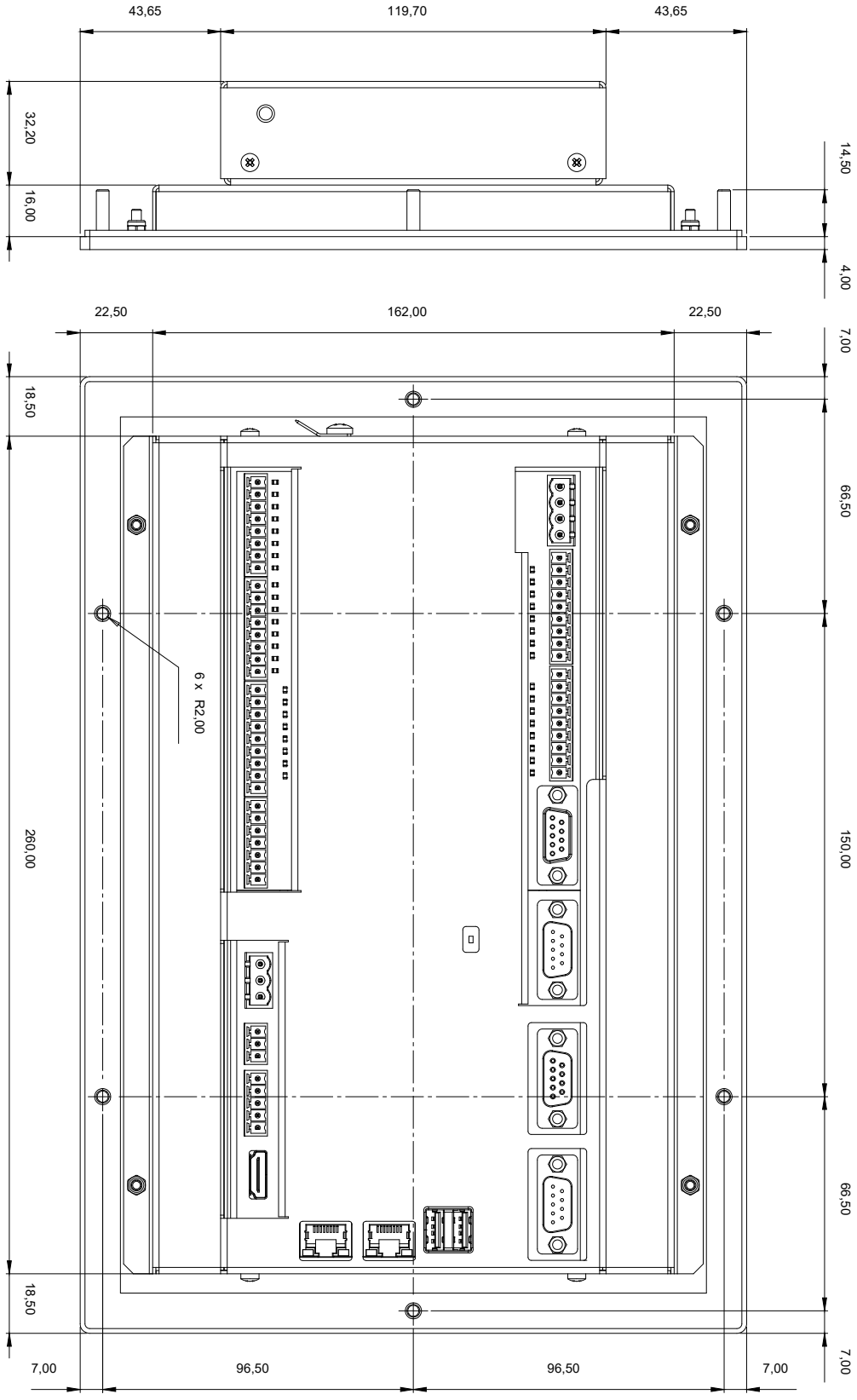
4.2.3 MicroNC CPU_ENC_IO_STEPPER/CPU_IO_STEPPER



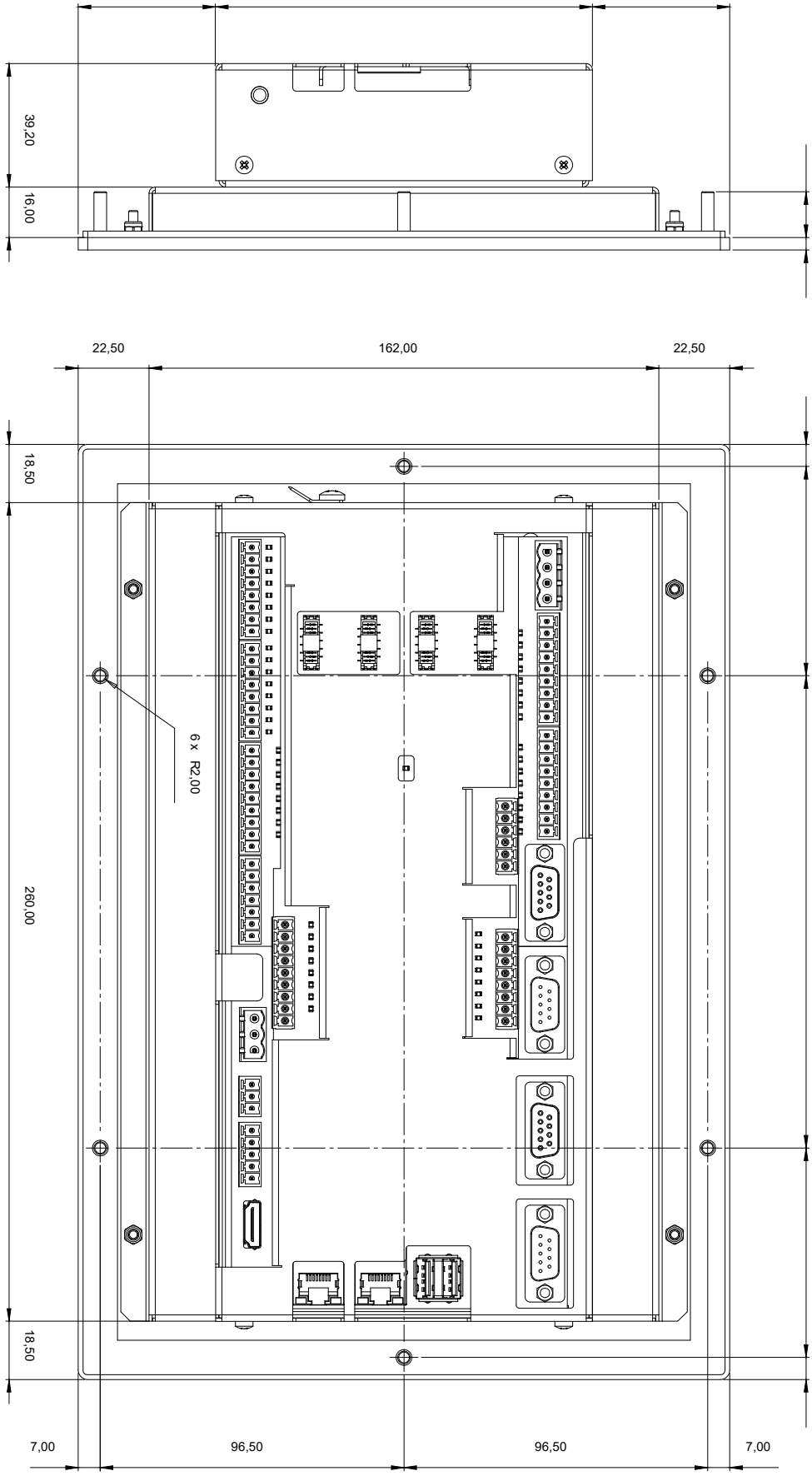
4.2.4 MicroNC Video_CPU_ENC/Video_CPU



4.2.5 MicroNC Video_CPU_ENC_IO/Video_CPU_IO



4.2.6 MicroNC Video_CPU_ENC_IO_STEPPER/Video_CPU_IO_STEPPER



4.2.7 Drill drawing