



**DATA SHEET  
CUA32-RF**

---

**NEWSON NV**

## Table of Contents

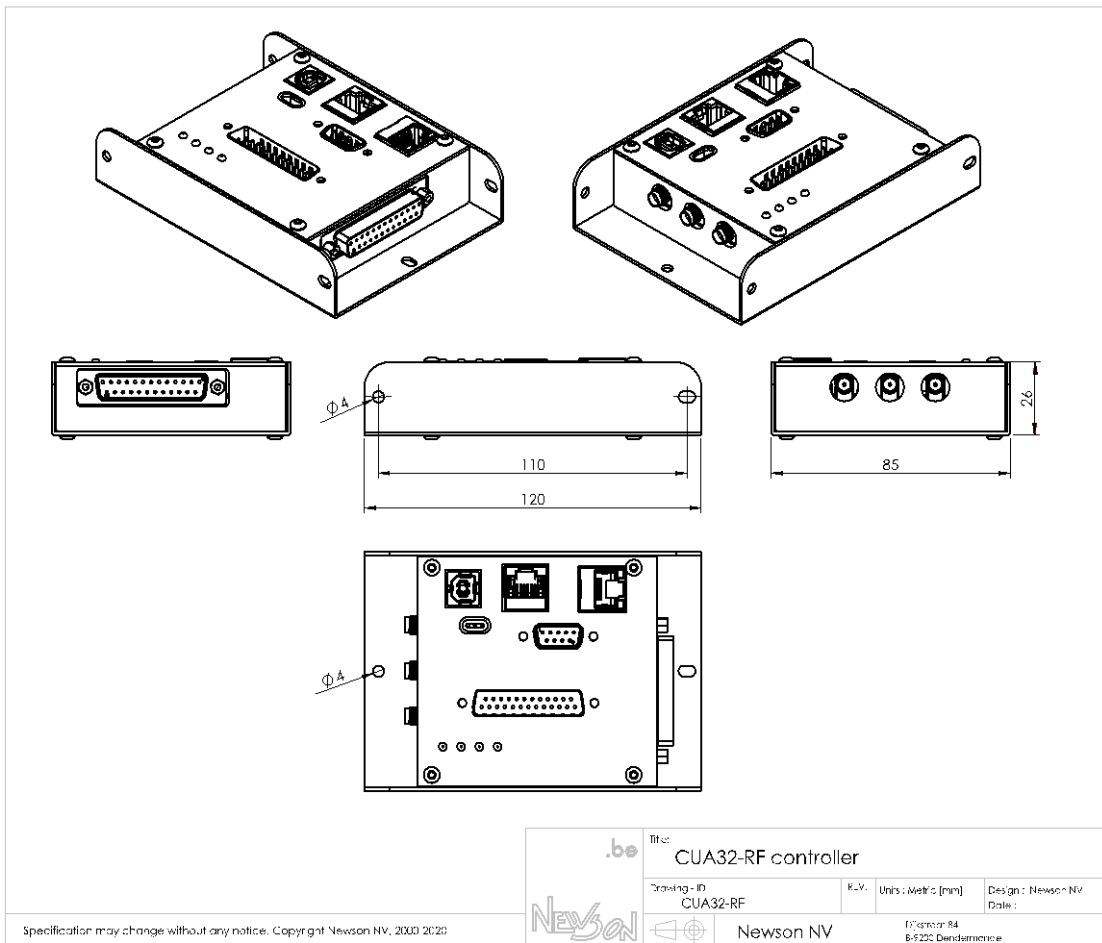
<b>1</b>	<b>CUA32-RF</b> .....	<b>3</b>
1.1	DESCRIPTION.....	3
1.2	DIMENSIONS .....	3
<b>2</b>	<b>CONNECTORS</b> .....	<b>4</b>
2.1	X4 - DIGITAL IO, ANALOG IO, DEFLECTOR DATA SNIFFING .....	4
2.2	X5 - CUA-ETH/CUA-USB COMPATIBLE CONNECTOR.....	5
2.3	X6 - ETHERNET .....	5
2.4	X7 - TARGET LINK.....	6
2.5	X8 - USB (GALVANICALLY ISOLATED).....	6
2.6	X9.....	6
2.7	X10 - RS232.....	6

# 1 CUA32-RF

## 1.1 DESCRIPTION

The CUA32-RF provides a pin compatible upgrade from CUA-USB/CUA-ETH devices. It communicates with a host computer, controls a deflection system, three table stages, triggers a laser and handles several IO events. Supporting streaming and stand-alone operation it is easy to integrate in any machine design. The CUA32-RF is a complete control card comprising both a CUA32-FE and a CUA32-TGT board. For more information related to CUA32-FE and CUA32-TGT devices refer to the datasheet "CUA32-XXX family building blocks".

## 1.2 DIMENSIONS



## 2 CONNECTORS

### 2.1 X4 - DIGITAL IO, ANALOG IO, DEFLECTOR DATA SNIFFING

All IO's on this connector are directly connected to the internal CUA32-TGT board. Refer to "CUA32-XXX family building blocks" for more information relating to IO types.

Pin Nr.	Name	Type	Description
1	Ch1	Sniffer	Deflector data sniffer (TTL levels, impedance 120 ohm)
2	Ch2	Sniffer	Deflector data sniffer (TTL levels, impedance 120 ohm)
3	VIO	VIO power supply	(*)
4	IO11	IO type 3	(*) VIO powered open emitter
5	IO12	IO type 3	(*) VIO powered open emitter
6	IO13	IO type 3	(*) VIO powered open emitter
7	IO14	IO type 3	(*) VIO powered open emitter
8,10,14,20	0V	power supply output	(**)
9,21	12V output	power supply output	(**)
11	IO5	IO type 2	(*) 5V logic and analog IO
12	IO6	IO type 2	(*) 5V logic and analog IO
13/25	IO17+,IO17-	LASER	(*) RS485 half-duplex, unterminated
15	Ch3	Sniffer	Deflector data sniffer (TTL levels, impedance 120 ohm)
16	IO10	IO type 3	(*) VIO powered open emitter
17	IO9	IO type 3	(*) VIO powered open emitter
18	IO16	IO type 3	(*) VIO powered open emitter
19	IO15	IO type 3	(*) VIO powered open emitter
22	5V output	power supply output	V out +/-5%, Iout<200 mA
23	IO8	IO type 2	(*) 5V logic and analog IO
24	IO7	IO type 2	(*) 5V logic and analog IO

(\*) Refer to datasheet "CUA32-XXX family building blocks"

(\*\*) The actual voltage on the 12V output lines reflects the voltage level of the connected power supply (X5).

## 2.2 X5 - CUA-ETH/CUA-USB COMPATIBLE CONNECTOR

Pin Nr.	Name	Type	Description
1/14	IO1-/IO1+	RS485 input	(*)
2/15	IO2-/IO2+	RS485 input	(*)
3/16	IO3-/IO3+	RS485 input	(*)
4/17	IO4-/IO4+	RS485 input	(*)
5/18	FE-/FE+	RS485 output	(**) Target link, terminated 120-ohm
6/19	TGT-/TGT+	RS485 input	(**) Target link, terminated 120-ohm
7/20	IO17-/IO17+	RS485 half-duplex	(***)
13	REF_IO	Reference I/O	Internally connected to 0V over 120-ohm resistor
21	5V	power supply output	V out 5V +/-5%, I out < 200 mA
8,9,22	0V	power supply output	
10,11,23	Power supply input	12V power input	(****) V in: 9...13 V, 45 Watt
12,24,25	Power supply return		

(\*) A RS485 receiver port is used to connect IO1- and IO1+ from this connector to the IO1 pin of the internal CUA32-TGT board. The same topology is used for IO2, 3 and 4. Those additional RS485 drivers provides true differential operation without allocating IO9, 10, 11 and 12 of the CUA32-TGT board. Pins 10, 11, 23 and 12, 24, 25 should be used as power supply input. A balanced filter and clamp diodes provide basic protection against power supply spikes, overvoltage and reverse polarization.

(\*\*) Those pins provide an alternative way to create a master-slave setup. Instead of using X7 connectors, two devices can be joined by connecting their TGT and FE pins in a straight fashion (pin 6 with pin 6, pin 7 with pin 7 and so on). Data rate on the target link lines is 10 Mbit/sec. The use of twisted pair cables is therefore highly recommended for proper impedance matching.

(\*\*\*) Refer to datasheet "CUA32-XXX family building blocks"

(\*\*\*\*) The system needs to be powered by a 12V power supply. Connections with the power supply need to be established using the power supply pins on connector X5. The power supply and return lines on this connector are connected with the internal 12 Volt system through a balanced filter. The power supply input further comprises a shunted Zener-diode as a short-term protection against over voltage and inverse polarization. Connecting the power supply with the 12V/0V pins on connector X4 omits said filter and should be avoided. The power supply is also used to power the connected rhotor deflectors. A single deflector consumes about 10 Watt at full load. A 3-axis system can easy be powered by a 45-Watt power supply. The enclosure is connected with the internal 0V through a 1µF capacitor paralleled with a 120-ohm resistor.

## 2.3 X6 - ETHERNET

This connector is only operational when the system is configured as a master device. Jumper (X9) connecting pin 1 and 2.

## 2.4 X7 - TARGET LINK

Using a standard (straight) ethernet cable a master slave connected can easy be set up using this connector.

## 2.5 X8 - USB (GALVANICALLY ISOLATED)

This connector is only operational when the system is configured as a master device. Jumper (X3) connecting pin 1 and 2. To avoid electrostatic charging when connected with a portable host (lap top) the shield of the USB is connected through a 120-ohm resistor with the enclosure.

## 2.6 X9

The CUA32-RF can be configured as a master or as a slave device. When the configuration jumper connects the two left most pins, pin 1 and 2, the system is configured as a master device. Through X6 or X7, a host computer can issue commands to control the system. When the jumper connects pin 2 and 3, the system is configured as a slave device. The systems USB, serial (RS232) and ethernet ports become disabled. Commands from the host are received through the master over the target link lines (FE+/FE- TGT+/TGT-). Using the system without a jumper installed might lead to unpredictable results.

## 2.7 X10 - RS232

This connector is only available when the system is configured as a master device.

Pin Nr.	Name	Type
2	RXD	RS232 input
3	TXD	RS232 output
5	0V	
7	RTS	RS232 output
8	CTS	RS232 input