

rhothor™ REGULATOR BOARD TECHNICAL DATASHEET

General description

This datasheet gives an overview of the features, the electrical connections and the mechanical dimensions of the regulator board used in the rhothor™ and cyclops™ deflection systems.



Features

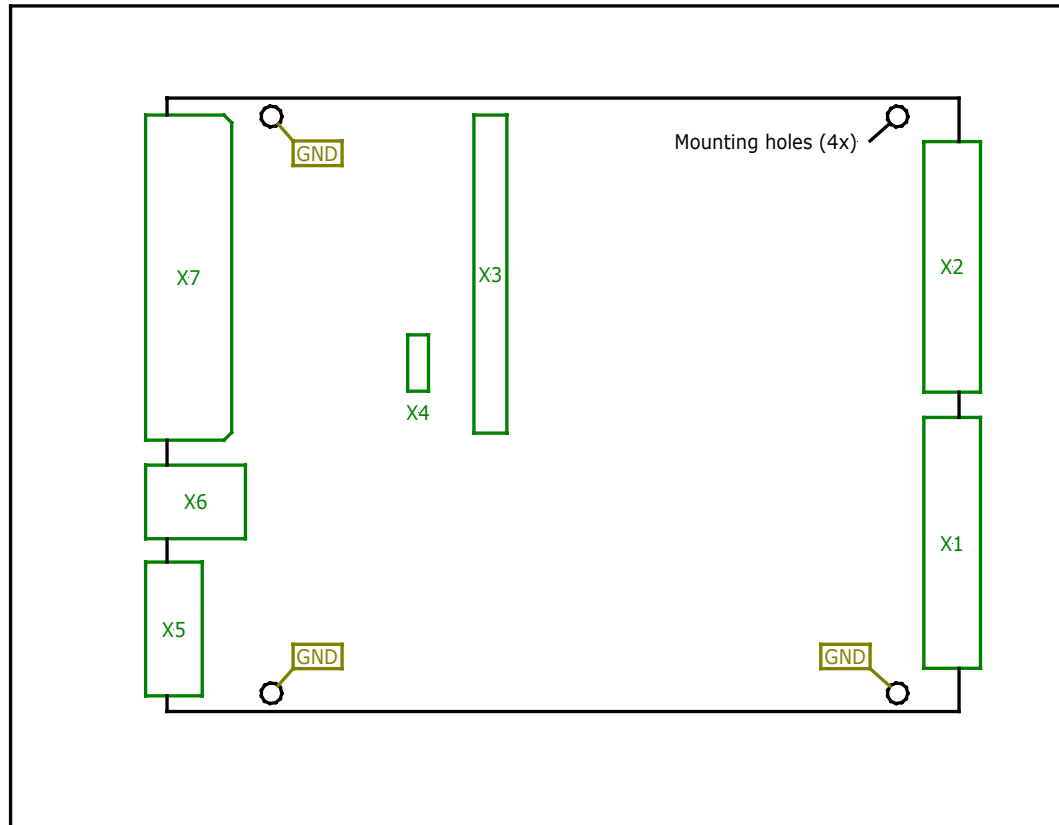
- dual axis regulator board,
- digital signal processing at 160 MIPS,
- integrated class-D amplifiers,
- programmable digital I/O interface,
- galvanically isolated USB interface,
- single 12VDC power supply,
- flight™ laser controlling integration,
- extension board connectors provided.



rhothor™ regulator boards are in compliance with directive 2002/95/EC regarding the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS).

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Connector overview



X1: Motor Y connector

X2: Motor X connector

X3, X4: Extension board connectors

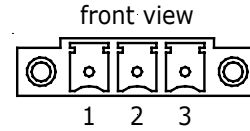
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X5: Power supply connector

The board needs an isolated **single 12VDC 2A power supply**. The power connection is compliant with the EMI norm EN55022 level B and ESD safe.

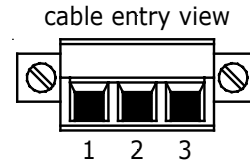
- **Board connector**

Producer: Phoenix Contact
Reference: MC1.5/3-GF-3.8



- **Cable connector**

Producer: Phoenix Contact
Reference: MC1.5/3-STF-3.81
Connector housing: KGG-MC 1.5/3



- **Pin descriptions**

Pin No.	Name	Description
1	DC+12V	Power supply input.
2	DC0V	Power supply ground.
3	GND	Connect GND with motor mounting block.

- **Specifications**

Description	Name	Min	Typ	Max	Units
Power supply input voltage	V _{DC+12V}	11.5	12	13	V
Power supply input current	I _{DC+12V}			2	A

X6: USB connector

The USB interface runs on Windows 2000 or XP.

- **Board connector**

USB-B

- **Cable**

Standard USB cable

- **Specifications**

Compliant with the Universal Serial Bus specification Rev. 2.0 at full speed data rate of 12 Mbit/s. The port is galvanic isolated, ESD protected and needs to be powered from the bus (bus-powered device).

Description	Name	Min	Typ	Max	Units
Galvanic isolation voltage	V _{galvanic}			2.5	kV
Bus-powered input voltage	V _{power}		5		V
Bus-powered input current	I _{power}			50	mA
ESD protection voltage	V _{ESD}			12	kV



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X7: Digital I/O connector

- **Board connector**
25 pin D-Sub female connector
- **Cable connector**
25 pin D-Sub male connector
- **Pin descriptions**

Pin No.	Name	Description
1 / 14	IO1- / IO1+	Differential I/O, RS485 compliant, 100 ohm termination.
2 / 15	IO2- / IO2+	Differential I/O, RS485 compliant, 100 ohm termination.
3 / 16	IO3- / IO3+	Differential I/O, RS485 compliant, 100 ohm termination.
4 / 17	IO4- / IO4+	Differential I/O, RS485 compliant, 100 ohm termination.
5 / 18	IO5- / IO5+	Differential I/O, RS485 compliant, no termination.
6 / 19	IO6- / IO6+	Differential I/O, RS485 compliant, no termination.
7 / 20	IO7- / IO7+	Differential I/O, RS485 compliant, no termination.
13	REF IO	Reference I/O, internally connected to GND over 100R resistor.
21	DC+5V	DC output for use by external boards.
8	GND	Ground.
10,11,23	DC+12V	Power supply input, internally connected to connector X5 pin 1.
12,24,25	DC0V	Power supply ground, internally connected to connector X5 pin 2.

- **Differential input/output specifications**

All IO-signals meets the requirements of the TIA/EIA-485A standard. At the regulator board the SN65HVD485E transceiver from Texas Instruments is used for each IO. The function of each IO-signal depends on the configuration. See the X7 configuration datasheets for more information.
- **DC output specifications**

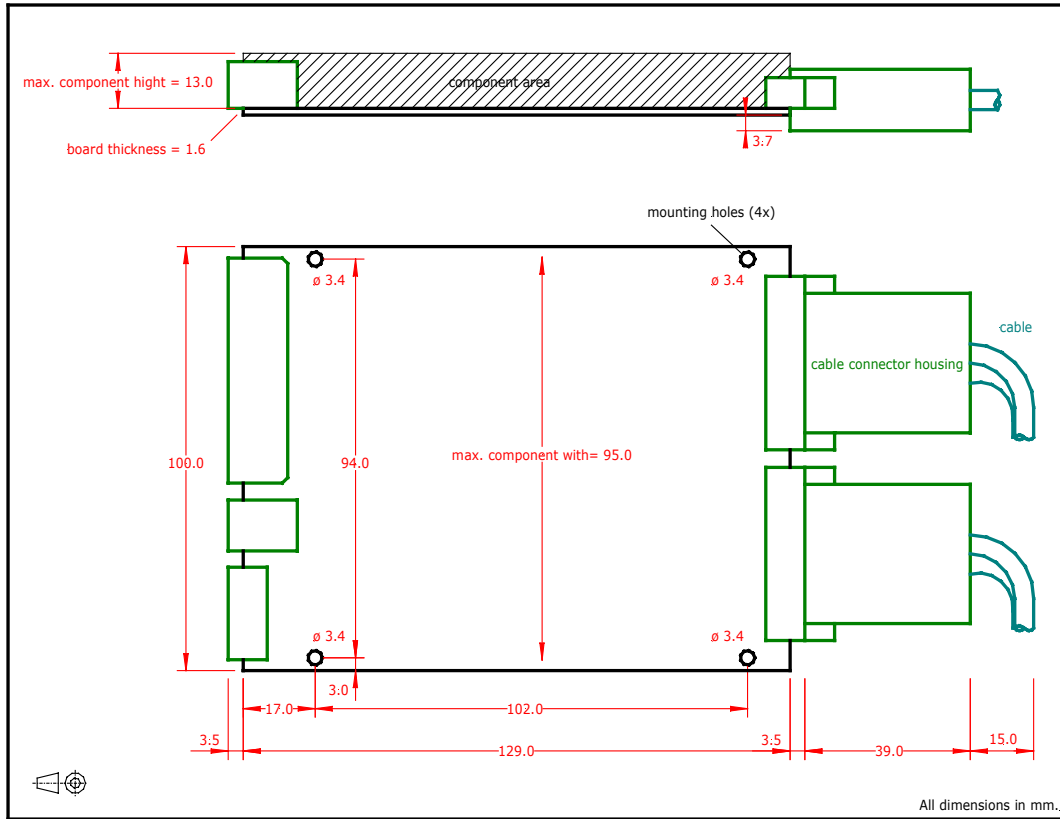
Description	Name	Min	Typ	Max	Units
Output voltage	V _{DC+5V}	4.80	5.00	5.05	V
Output current	I _{DC+5V}			200	mA

- **Power supply input specifications**

See power supply connector (X5) specifications.

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Regulator board mechanical dimensions



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Regulator board housing mechanical dimensions

