

ROSTEC GPU

General Purpose Unit

Rev.2, April 10, 2000



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General description

The General Purpose Unit is a 19 inch 1 Unit (44mm) rackmounted metal frame, able to accommodate four ROSTEC GPU Modules. Each module mounted in the frame is fully encapsulated in metal and is connected to the back plane by a gold plated 32-pin DIN 41612 edge connector.

The GPU has a build in "quiet" mains power supply, supplying the modules with all necessary power via the back plane power bus. The back plane also carries a 10-bit wide digital signal bus for communication between modules.

Four 25-pole female SUB-D connectors mounted on the back panel of the GPU frame provide input/output connections to the individual modules.

Module screening

When the modules are installed in the frame with the front plates and top lid mounted, a closed metal box of plated steel is formed around each individual module.

The plated steel acts both as a magnetic and an electric conductor, creating a Faraday Cage for the module. The cage forces the energy created by magnetic and electric fields to travel as electric currents on the surface of the cage, unable to penetrate through the metal.

The modules has 3rd order low pass on-card filters on each power line, efficiently preventing electrical HF noise to enter the module and at the same time preventing the module in transmitting switching noise to the power bus.

This architecture provides excellent screening and isolation between modules, as signals have to cross a 6th order filter barrier and two Faraday cages. The crosstalk in the audio passband is better than -140 dBfs.

Power Supply

The GPU has a standard "quiet" power supply based on a mains toroid transformer and linear

regulators for +12, -12, +5 and -5V supply lines. Crowbar protection and auto fuse shutdown is provided on the +5 Volt line. The power supply itself does not generate or transmit interference, but it is HF isolated from the mains grid by a high quality 4th order mains filter.

The power supply conforms fully to the CE requirements to electromagnetic compatibility.

Bus Structure

The back plane carries one 16 line horizontal bus and four 16 line vertical busses, one pr. module.

6 lines of the horizontal bus are used for power supply lines:

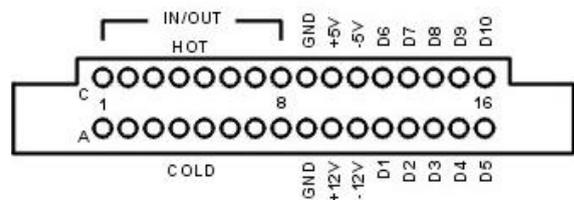
Gnd, Gnd, +12V, -12V, +5V, -5V.

10 lines of the horizontal bus are used for digital communication between modules:

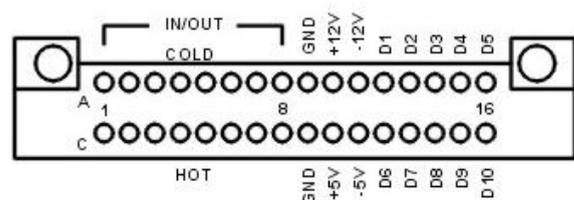
D1 - D10.

The four 16 line vertical busses (A1-A8 and C1-C8) are used as I/O connections between the modules and the corresponding 25 pole SUB-D connector on the back panel.

EDGE CONNECTOR BACK PLANE SEEN FROM MODULE



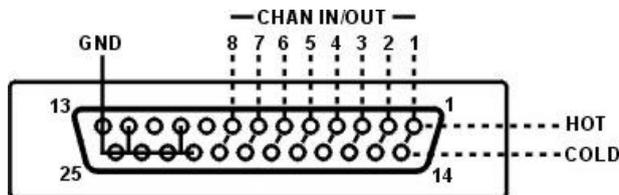
EDGE CONNECTOR MODULE TOP VIEW



Input/output connections

Due to the broad range of modules available, the number of possible I/O combinations vastly exceeds the possible solutions when using standard AES or BNC connectors. As a result, the Yamaha Standard was adopted using module I/O connections via industry standard 25 pole SUB-D female connectors on the back panel.

The pin configuration of the SUB-D connectors is based on the general template as seen below, but the connections to pins 1-8 and 14-21 depend on the module installed in the corresponding slot.



Converter panels between SUB-D and XLR/BNC connectors are available upon request.

Module Access

Module access is easy and quick. After removing the two hex screws on the front, the frontplate can be removed and the module can be pulled out.

Simply use the fingers or an adequate tool to pull the two metal studs on the PCB board.

Reinsert the module by sliding it into the PCB guides on the sidewalls of the compartment, and give it a firm push.

Mount the frontplate by the hex screws. Do not use excessive force! The screws have a tendency to lock by surface friction.

Electrical and mechanical specs

Dimensions

Width 19 inch,
Height 1U (44 mm)
Depth 320 mm

Weight: 5,0 kg without modules

Power requirements:

EU version: 180-260 VAC 50 Hz, 25 Watts
USA version: 90 –130 VAC 60 Hz, 25 Watts

Power connection:

IEC mains inlet

Signal connections:

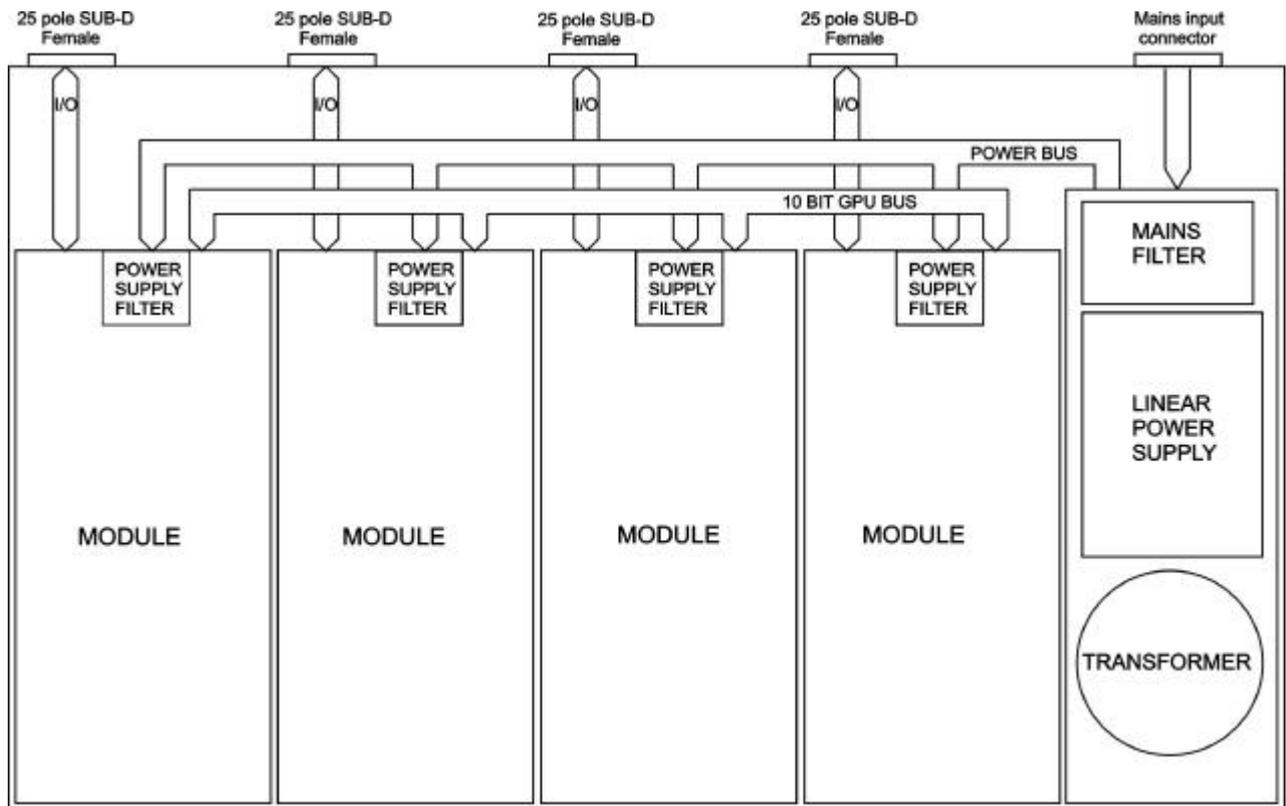
4 x 25 pole SUB-D female

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Block schematic



Back panel

