

# QTU1400

## ARCHITECTS' & ENGINEERS' SPECIFICATIONS

### OVERVIEW

The power amplifiers shall be a four-channel model with a switch mode universal power supply with Power Factor Correction and switch mode fixed frequency class D output circuit topology with constant voltage insulated output at 50, 70 or 100V thanks to four internal transformers.

The amplifier shall have four auxiliary line inputs for emergency messages, activated by four 24V auxiliary command inputs.

The amplifier shall be provided with an internal speaker and an headphone amplifier for listening to each of the four input or output channels.

The amplifier shall be able to be equipped with optional sensing and communication board, on RS485 bus, providing full monitoring and control through proprietary software running on an external PC.

### POWER OUTPUT SPECIFICATIONS

The amplifier shall exhibit the following power output performance, rms (1KHz @ 0,5% THD):

- 4 x 350 Wrms/500 W program @ 50V with minimum impedance of 7,14 Ohm;
- 4 x 350 Wrms/500 W program @ 70V with minimum impedance of 14 Ohm;
- 4 x 350 Wrms/500 W program @ 100V with minimum impedance of 28,5 Ohm.

### AUDIO SPECIFICATIONS

The amplifier shall have:

- input impedance: 10K Ohm;
- input type: balanced;
- voltage gain: 34 dB @ 50V, 37 dB@70V, 40dB@100V;
- input sensitivity: 1,58 Vrms/6,19 dBu;
- maximum input level: 3,5 Vrms/13,10 dBu;
- frequency response (100V @ 28,5 Ohm): 50Hz-20KHz (0/-3 dB);
- damping Factor: >600 @100 Hz;
- slew Rate (100V @ 28,5 Ohm): 30V/us (input filter bypassed);
- S/N Ratio (20Hz-20KHz A weighted) in dB: >105 dB;
- THD+N: <0,5% from 1W to full power (typically <0,1%);
- SMPTE IMD: <0,5% from 1W to full power (typically <0,1%);
- DIM30 IMD: <0,5% from 1W to full power (typically <0,01%);
- crosstalk > 70 dB @ 1 KHz.

### POWER SUPPLY & COOLING SPECIFICATIONS

The amplifier shall have an universal switch mode power supply with Power Factor Correction with one, microprocessor temperature controlled, continuously variable speed fan, front-to-back airflow. The amplifier shall exhibit the following performances:

- required AC mains: universal AC input 95-265 V, 50/60 Hz;
- minimum voltage for power up: 90 V;
- power factor cos ( $\varphi$ ): more than 0,95% from 200 W to full output power;

- detachable mains power cord set supplied with amplifier with IEC 16A on amplifier side and Schuko plug for EU and rest of the world, American 3 pin 15A for USA.

### PROTECTION CIRCUITS SPECIFICATIONS

The amplifier shall be equipped with the following protection circuits:

- AC protection: shuts down the power supply if the line voltage is outside the operating voltage (up to 290V AC mains tolerant). Internal varistor protects anyway for mains over 290V containing damages to internal circuits;
- turn on/off muting: for about 4 seconds after turn on, and soon after turn off, the amplifier outputs are muted;
- clip limiter: prevents severely clipped waveforms from reaching the loudspeakers, whilst maintaining full peak power;
- DC protection: protects against infrasonic signals at the outputs, DC or very low frequencies that could damage loudspeakers;
- VHF protection: protects the loudspeakers against strong, very high frequency, non-musical, signals above the audible range;
- long term limiter: "protect" red leds light when it is started the output tension reduction due to steady long term rms signals (not musical signals but sinus, feedback, etc.), preventing damage to loudspeakers;
- short circuit protection: "protect" red leds light in case of possible short circuit or other stressful events for the output circuits. This protection will reset automatically when the short circuit conditions are removed;
- thermal protection: "protect" red leds light when heat sinks reach 60°C (140°F), at 75°C (167°F) thermal sensing circuit will mute both channels, they will un-mute automatically when temperature fall under 65°C (149°F).

### FRONT PANEL FEATURES

The amplifier front panels shall include:

- push on/push off mains power switch;
- four detect gain reduction knob, one for each output channel;
- two 5 led bars, one for each channel, with 3 green leds, 1 yellow and 1 red each;
- four green leds, one for each channel, marked as "signal" that will light when input signal reach -66dBV;
- four red leds, one for each channel, marked as "protect" that will light when the channel will be in a protection status;
- four green leds, one for each channel, marked as Monitor in, that will light when the input signal of the corresponding channel is selected from headphone monitoring output;
- four green leds, one for each channel, marked as Monitor out, that will light when the output signal of the corresponding channel is selected from headphone monitoring output;
- two green leds, one for each couple of channels, marked as "ready" that will light when amplifier is on;
- two yellow leds, one for each couples of channels, marked as "temp" that will light when temperature will reach 70°C (158°F), 5°C (41°F) before the protection circuit will mute outputs;
- one detect headphone output level monitor knob;

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- one push button for selecting headphone/internal speaker monitoring source;
- one 6,3 mm (1/4 in) jack output for headphone;
- one removable dust filter cover.

## REAR PANEL FEATURES

The amplifier rear panel shall include:

- IEC 16A mains detachable connector, amplifier provided with power cord set with IEC16A on amplifier side with cable 3G1,0mmq and Schuko plug for Eu and rest of the world and with cable 3x16AWG and American 3 pin 15A plug for USA;
- RJ45 connector and dual recessed encoders for ID selection on amplifier with optional network board;
- four 3 poles (5,08 mm) MSTB 2,5/3-ST-5,08 Phoenix© type connectors for channel 1/2/3/4 inputs for positive, negative and signal ground;
- four 3 poles (5,08 mm) MSTB 2,5/3-ST-5,08 Phoenix© type connectors for channel 1/2/3/4 auxiliary inputs for positive, negative and signal ground;
- four 2 poles (5,08 mm) MSTB 2,5/2-ST-5,08 Phoenix© type connectors for channel 1/2/3/4 auxiliary 24V voltage command inputs for positive and ground;

- four 4 poles (5,08 mm) MSTB 2,5/4-ST-5,08 Phoenix© type connectors for channel 1/2/3/4 floating insulated outputs for 50V, 70V, 100V and ground;
- recessed channel 1/2 link to channel 3/4 auxiliary 24V command switch;
- recessed channel 1/2 link to channel 3/4 auxiliary line input switch;
- one cooling fan outlet.

## PHYSICAL SPECIFICATIONS

The amplifier shall comply with EIA standard 19 in. rack (EIA RS-310-B).

External dimensions: 483mm (19 in) wide, 480 mm (18,9 in) deep, 88 mm (3,46 in) high.

Construction: 1 mm (0,04 in) steel chassis, 3 mm (0,12 in) steel front panel, 3mm (0,12 in) steel screw holes protection.

Cabinet shall be natural steel color with black painted cover and blue and black front panel.

Net Weight: 29 Kg (63.9 lbs).

Shipping weight: 32 Kg (70,54 lbs).

The amplifier shall be approved for use as specified by CE.

The amplifier shall be the Powersoft QTU1400.