User Manual

iAC
Installation Power Amplifier



Safety instructions

When using this electronic device, basic precautions should always be taken, including the following:

1 Read all instructions before using the product.

2 Do not use this product near water (e.g., near a bathtub, washbowl, kitchen sink, in a wet basement or near a swimming pool etc). Care should be taken that objects do not fall into liquids and liquids would not be spilled on the device.

3 Use this device when you are sure that it has a stable base and it is fixed securely.

4 This product, in combination with loudspeakers may be capable of producing sound levels that could cause permanent hearing loss. Do not operate for a long period of time at a high volume level or at a level that is uncomfortable. If you experience any hearing loss or ringing in the ears, you should consult with otorhinolaryngologist.

5 The product should be located away from heat sources such as radiators, heat vents, or other devices that produce heat.

6 Note for power connections: for pluggable equipment, the socket-outlet shall be installed near the equipment and shall be easily accessible.

7 The power supply should be undamaged and never share an outlet or extension cord with other devices. Never leave device plugged into the outlet when it is not being used for a long period of time.

8 Power disconnection: when the power cord connected to the power grid is connected to the machine, the standby power is turned ON. When the power switch is turned ON, the main power is turned ON.The only operation to disconnect the power supply from the grid, unplug the power cord.

9 Protective Grounding - An apparatus with class I construction shall be connected to a power outlet socket with a protective grounding connection.
Protective Earthing - An apparatus with class I construction shall be connected to a mains socket outlet with a protective earthing connection.

10 The lightning flash with an arrowhead symbol, with an equilateral triangle, is intended to alert the user to the presence of uninsulated dangerous voltage' within the products enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



11 The exclamation mark within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.



12 There are some areas with high voltage inside, to reduce the risk of electric shock do not remove cover of the device or power supply.
The cover should be removed by the qualified personnel only.

13 The product should be serviced by qualified service personnel if:
- The power supply or the plug has been damaged.
- Objects have fallen into or liquid has been spilled on the product.
- The product has been exposed to rain.
- The product has been dropped or the enclosure damaged.

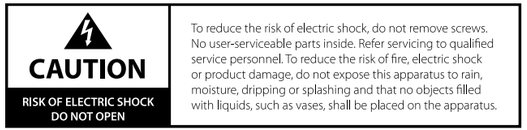


Table of contents

Before you start

Introduction....2
Features....2

Operation

Front/rare panel of iAC 120 DSP....3
Front/rare panel of iAC 240 DSP and iAC 360 DSP....4
Front/rare panel of iAC 2X240 DSP....5
Front panel functions....6
Rear panel functions....7
Main menu....7
RS232 codes | Send Sequences....11

Specifications

General specifications....24

Before you start

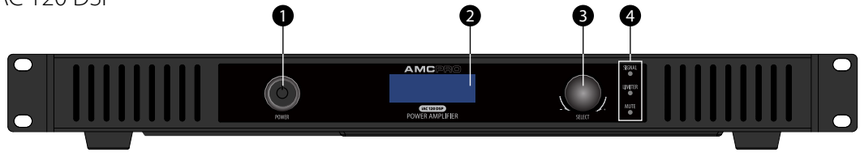
iAC amplifiers with an integrated signal processor are designed for 100 V and low impedance background music systems. The model line consists of single-channel and two-channel amplifiers. They all have an RS 232 control port for integration amplifier with third-party automation systems. Balanced Phoenix and stereo RCA input with audio link connection for easy installation, multiple voltage output suitable for 4 Ω, 70 V, and 100 V speaker lines.

FEATURES

- Six points parametric EQ
- Input gain adjustment
- Full RS232 control
- Limiter
- Delay
- Input gate
- Low and high pass filter
- Cooling FAN setup
- Transformerless 4ohm output
- Output configuration
- Front panel control lock
- StandBy setup
- Balanced and unbalanced inputs

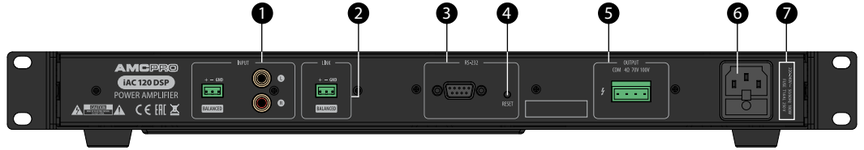
Operation

Front Panel | iAC 120 DSP



1. Power button | 2. LCD display | 3. Rotary encoder | 4. Signal, limiter & mute indicators

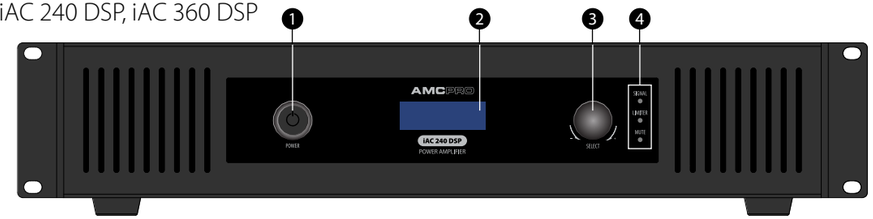
Rear Panel | iAC 120 DSP



1. Stereo RCA & balanced Phoenix inputs | 2. Link output | 3. RS232 serial interface | 4. Reset button | 5. Main output | 6. Main power connector
7. Power and fuse rating: **iAC 120 DSP:** 220-240V ~50/60Hz 180W Fuse T1.6AL 250V

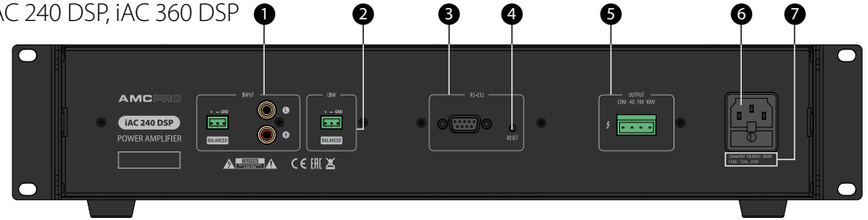
Operation

Front Panel | iAC 240 DSP, iAC 360 DSP



1. Power button | 2. LCD display | 3. Rotary encoder | 4. Signal, limiter & mute indicators

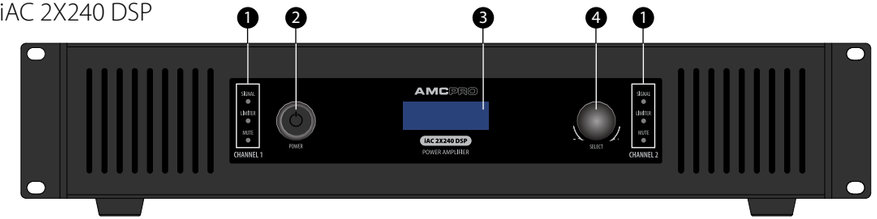
Rear Panel | iAC 240 DSP, iAC 360 DSP



1. Stereo RCA & balanced Phoenix inputs | 2. Link output | 3. RS232 serial interface | 4. Reset button | 5. Main output | 6. Main power connector
7. Power and fuse rating: **iAC 240 DSP:** 220-240V ~50/60Hz 360W Fuse T2AL 250V. **iAC 360 DSP:** 220-240V ~50/60Hz 540W Fuse T3AL 250V

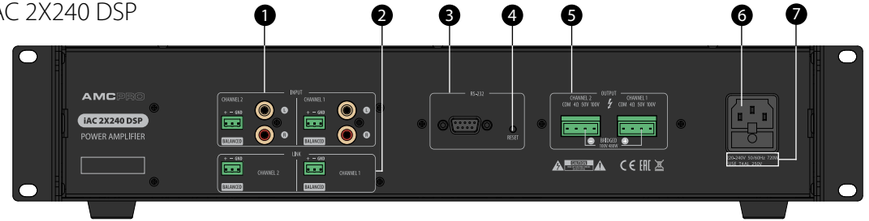
Operation

Front Panel | iAC 2X240 DSP



1. Signal, limiter & mute indicators | 2. Power button | 3. LCD display | 4. Rotary encoder

Rear Panel | iAC 2X240 DSP



1. Stereo RCA & balanced Phoenix inputs | 2. Link outputs | 3. RS232 serial interface | 4. Reset button | 5. Main output | 6 . Main power connector
7. Power and fuse rating: **iAC 2x240 DSP:** 220-240V ~50/60Hz 720W Fuse T4AL 250V

Operation

Front panel functions

LED INDICARTORS
THE SIGNAL INDICATOR: illuminates to indicate an audio signal in the amplifier's input.

LIMITER INDICATOR: the amplifier has a built-in audio signal limiter to limit output power. When the input audio signal exceeds the set threshold, the limiter reduces a signal level to a safe value and indicates activity.

MUTE INDICATOR: illuminates when mute function is activated. Mutted channel is indicated with red LED light.

POWER BUTTON
Switch amplifier power ON or OFF.

LCD DISPLAY
LCD screen displays main information and allows adjust amplifier settings.

ROTARY ENCODER
The knob is dedicated to controlling volume and operating an amplifier with the help of a simple and intuitive menu.
Press and hold the rotary encoder for two seconds to bring the main menu, turn it to scroll through the menu, and press it shortly to enter the setting or sub-menu. Adjust parameter value by turning the encoder and press it to save the adjusted parameter value.

To jump back from any menu and skip the settings hold the encoder until the LCD brings the home screen. (This method does not apply for EQ adjusting.)
Amplifier automatically saves settings and returns home screen after 20 seconds of inactivity.

ROTARY ENCODER (IAC 2X240 DSP)
Push the rotary encoder shortly on the home screen to select amplifier channel CH1 or CH2. Hold it to activate the selected channel menu. All other control the same as listed above.

Operation

Rear panel functions

STEREO RCA & BALANCED PHOENIX INPUTS
These inputs are designed for line level audio only. Please use a preamplifier to connect a microphone to this amplifier. Pay attention: link output links audio from Phoenix input only, RCA input is not connected to link output.

AMPLIFIER OUTPUTS
Audio outputs for 4 Ω, 70 V, and 100 V speaker lines. Only one output can be used at the time. 100 V and 70 V outputs are enabled for the default, to use 4 Ω output enable it first by using Output mode menu (page 10).

RS232 SERIAL INTERFACE
Designed to control the main function of iAC amplifiers by using a serial interface. RS232 protocol is listed at the end of this user manual (page 12).

RESET BUTTON
This button resets all amplifier parameters to default values. To activate this function, press and hold button for ten seconds.

MAIN POWER CONNECTOR
Power connector with built-in fuse holder. The fuse specification is listed on the rear panel.

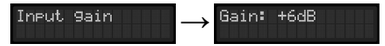
Main menu

MENU HOME SCREEN



Menu system In normal operating mode shows the volume of each amplifier channel. Push the rotary encoder to switch iAC2x240DSP channels.
Push and hold the rotary encoder to enter the main menu and access more controls of parameters.

INPUT GAIN



The amplifier can adjust input gain in the +/- 12dB range. A setting is based on a DSP chip and dedicated to precisely matching audio source output and amplifier input levels. Default input gain - 0 dBu. Positive value means that input signal is amplifier by indicated value, negative value – input level decreased.

EQUALIZER
This is a parametric equalizer. Users are free to change EQ frequency, gain, and Q factor. Default frequency values are listed below:

EQ1: 120Hz **GAIN:** 0dB **Q:** 1	**EQ3:** 1kHz **GAIN:** 0dB **Q:** 1	**EQ5:** 16kHz **GAIN:** 0dB **Q:** 1
EQ2: 200Hz **GAIN:** 0dB **Q:** 1	**EQ4:** 4kHz **GAIN:** 0dB **Q:** 1	**EQ6:** 18kHz **GAIN:** 0dB **Q:** 1

Operation

Adjusting EQ:



To adjust EQ select one of six EQ presets and press rotary encoder. In this setup amplifier allows to adjust selected EQ gain in +/- 12dB range. After adjusting press rotary encoder to save the settings and return main menu.

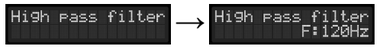
Setup EQ preset:



EQ frequency and Q factor can be changed by the user on the equalizer Sub-menu. DSP allows to choose an EQ point frequency in the 20Hz – 20kHz range and change the Q factor from 0.5 to 12. A smaller Q number represents wider frequency bandwidth that will be affected by the equalizer.

To change the preset select EQ and press and hold the rotary encoder till brings the EQ sub-menu. Set the frequency and press the knob to adjust the Q factor. Another press to save settings and jump back to the EQ menu.

HIGH PASS FILTER



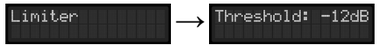
Amplifier has internal high pass filter to cut off low audio frequencies. This filter parameter depends of amplifier output configuration. In LOW Z mode user is free to set high pass filter in 20 Hz-400 Hz range while in 100 V mode amplifier's lower frequencies are limited automatically - user can adjust it further in 120 Hz - 400 Hz range. High pass filter slope is 6 dB per octave.

LOW PASS FILTER



This option is available in Low Z mode only. The setting allows connecting a passive subwoofer to amplifier and limit frequency range linked to low Z output. User can turn off this filer and have a full frequency range in the output or enable a high cut filter with a possibility to control cut area in 20 Hz - 200 Hz range.
Filter slope is 6 dB per octave.

LIMITER

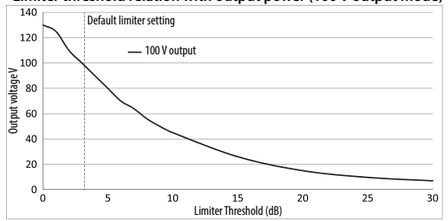


Audio DSP processor allows setup limiter in the range from -30dB to 0 dB. This setting keeps the amplifier and speakers in the safe zone and prevents audio from clipping and loudspeaker overloading. The following charts shows how the amplifier's output power depends on the limiter threshold. The limiter attack time

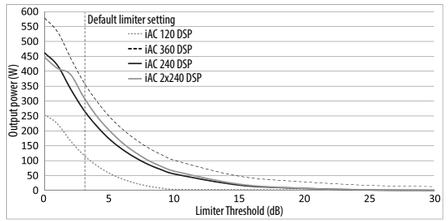
Operation

is 1 ms and the release time is fixed to 1000 ms. Default limiter threshold level is -3 dB. The red color LED in the front panel indicates that the limiter is activated, and the audio level reached the threshold level.

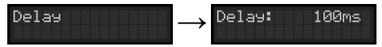
Limiter threshold relation with output power (100 V output mode)



Limiter threshold relation with output power (4 Ω output mode)



DELAY



DSP allows adding delay to an audio signal in 0 – 500ms (0-170m.) range by using 1ms resolution.
Please note that the delay parameter in iAC 2x240 DSP can be adjusted for channel 1 (CH1) only, it also works in bridge mode. iAC 2x240 DSP amplifier's channel 2 (CH2) do not support delay.

INPUT GATE



The amplifier has an installed audio gate. This function mutes the amplifier if the audio signal or noise in the input is smaller than the specifier threshold. Users can enable or disable this function.
By default audio gate is enabled. The audio gate threshold is fixed to -56dBu.

SYNC SETTINGS



The iAC 2x240 DSP Sync function allows to link both channels and copy settings from one channel to another to control both amplifier channels at once.
There is the option to copy CH1 settings t CH2 or copy CH2 settings to CH1

Operation

FAN MODE



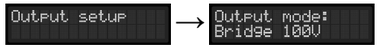
Amplifier cooling is based on fan powered by main CPU. Normally fan rotates at low speed in order to keep air circulation inside amplifier. User has option to turn off the fan and makes amplifier noise free. Despite user settings main CPU constantly measures power amplifier temperature and if heat rise above dangerous threshold (70°) main CPU temporary overrides user settings and forces fan to cool down amplifier untill safe temperature is reached. Default "FAN mode" setting – auto.

OUTPUT SETUP



An iAC amplifier has two kinds of outputs: transformer isolated 100 V / 70 V output, and Low Z output powered directly from power amp stage. User must setup output before starting using amplifier. By default amplifier is set for 100 V / 70 V output, it means that only high voltage output is enabled, also low cut filter is activated. Please set output mode to LOW Z in order to activate 4 ohm output. In LOW Z mode high pass filter allows full frequency (20 Hz-20 kHz) range reproduction while 100 V / 70 V mode limits audio rage to 120 Hz – 20 kHz. LOW Z mode brings additional option to menu – LOW pass filter. In 100 V / 70 V mode LOW pass filter is unavailable.

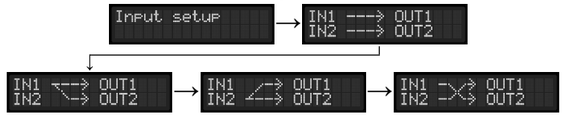
OUTPUT SETUP FOR IAC 2X240 DSP



Two channel amplifiers (iAC 2x240 DSP) can be set to 100 V bridge mode to combine the power from two output channels to drive a single 100 V audio line. To enable 100 V Bridge output, a user should set up the amplifier's output mode.

INPUT MATRIX FOR IAC 2X240 DSP

iAC 2x240 DSP amplifier has an option to route any input to any output. This matrix function allows to use the same audio input on both channels or swap inputs and outputs for each other. All available settings are listed below.



STANDBY



Manual: manually mutes amplifier and turns off LCD display to save power.
To exit standby mode turn or push the rotary encoder.

Operation

Auto: amplifier goes to standby automatically if the main CPU detects no audio in amplifier inputs. Amplifier automaticity returns to the normal stage as soon as the CPU detects audio.
Activated standby mode is indicated by the red color LED on the power button.

LOCK



This function locks the front panel control to prevent unauthorized access to the amplifier control menu or volume adjusting. To disable the function press and hold the rotary encoder for 5 seconds. The lock function affects front panel controls only, serial control and reset functions are not free of locking. Lock mode can be also enabled or disabled by using the RS232 command.

FACTORY RESET



Resets all amplifier parameters to default values.

EXIT



Turns off the menu and returns the default volume control screen.

RS232 codes | Send Sequences

RS232 COMMANDS

The following table lists commands for IAC 120 DSP / 240 DSP / 360 DSP models. Amplifier iAC 2x240 DSP uses the same command structure only special bytes to specify the amplifier channel must be sent to control CH1 or CH2 or both channels and ones (Sync mode).

CH1 control byte **01** Example: MUTE CH1
69 41 43 55 **01** 02 01 A1 AA
CH2 control byte **02** Example: MUTE CH2
69 41 43 55 **02** 02 01 A1 AA
SYNC settings control byte **54** Example: MUTE CH1 and CH2
69 41 43 **54** 01 02 01 A1 AA
Individually channel settings **55** Example: MUTE CH1
69 41 43 **55** 01 02 01 A1 AA

RS232 CODES ARE LISTED IN HEX
COM Port Settings

Baud Rate: 9600
Parity: None
Data Bits: 8
Stop Bits: 1
Flow Control: No

Operation

RS232 COMMANDS

Function	Command (CH1 01 CH2 02)	Control bytes xx	Feedback	Data bytes xx
MUTE	69 41 43 55 01 02 01 A1 AA		69 41 43 55 01 5D 02 3F AA	
UNMUTE	69 41 43 55 01 02 01 A0 AA		69 41 43 55 01 5D 02 **xx** AA	After unmute amplifier sends volume level used before mute **xx** – VOLUME LEVEL control bytes
VOL step control +/-	69 41 43 55 01 02 01 **xx** AA	**01** = VOL + **02** = VOL -	69 41 43 55 01 5D 02 **xx** AA	**xx** – VOLUME LEVEL control bytes
SET VOL LEVEL direct setup	69 41 43 55 01 04 01 **xx** AA	**xx** – VOLUME LEVEL control bytes	69 41 43 55 01 5D 02 **xx** AA	**xx** – VOLUME LEVEL control bytes
INPUT GAIN step control +/-	69 41 43 55 01 05 01 **xx** AA	**01** = GAIN + **02** = GAIN -	69 41 43 55 01 5D 05 **xx** AA	**xx** – GAIN LEVEL control bytes
SET INPUT GAIN direct setup	69 41 43 55 01 06 01 **xx** AA	**xx** – GAIN LEVEL control bytes	69 41 43 55 01 5D 05 **xx** AA	**xx** – GAIN LEVEL control bytes
LOW PASS filter step control +/-	69 41 43 55 01 07 01 **xx** AA	**01** = LOW PASS F + **02** = LOW PASS F -	69 41 43 55 01 5D 07 **xx** AA	**xx** – LOW PASS control bytes
LOW PASS filter direct setup	69 41 43 55 01 08 01 **xx** AA	**xx** – LOW PASS control bytes	69 41 43 55 01 5D 07 **xx** AA	**xx** – LOW PASS control bytes
HIGH PASS filter step control +/-	69 41 43 55 01 09 01 **xx** AA	**01** = HIGH PASS + **02** = HIGH PASS -	69 41 43 55 02 5D 09 **xx** AA	**xx** – HIGH PASS control bytes

Operation

Function	Command (CH1 01 CH2 02)	Control bytes xx	Feedback	Data bytes xx
HIGH PASS filter direct setup	69 41 43 55 01 0A 01 **xx** AA	**xx** – HIGH PASS control bytes	69 41 43 55 02 5D 09 **xx** AA	**xx** – HIGH PASS control bytes
LIMITER threshold step control +/-	69 41 43 55 01 0B 01 **xx** AA	**01** = LIMITER + **02** = LIMITER -	69 41 43 55 01 5D 0B **xx** AA	**xx** – LIMITER threshold level bytes
LIMITER threshold direct setup	69 41 43 55 01 0C 01 **xx** AA	**xx** – LIMITER threshold level bytes	69 41 43 55 01 5D 0B **xx** AA	**xx** – LIMITER threshold level bytes
DELAY time +/-	69 41 43 55 01 0D 01 **xx** AA	**01** = DELAY + **02** = DELAY -	69 41 43 55 01 5D 0D **xx xx** AA	**xx xx** – DELAY time bytes
DELAY time direct setup	69 41 43 55 01 0E 01 **xx xx** AA	**xx xx** – DELAY time bytes	69 41 43 55 01 5D 0D **xx xx** AA	**xx xx** – DELAY time bytes
OUTPUT MODE	69 41 43 55 01 0F 01 **xx** AA	**00** = 2CH 100V **01** = 2CH Low Z **02** = Bridge mode (iAC 2x240DSP only)	69 41 43 55 01 5D 0F **xx** AA	**00** = 2CH 100V **01** = 2CH Low Z **02** = Bridge mode (iAC 2x240DSP only)
EQ frequency adjust by step +	69 41 43 55 01 21 01 **xx** 01 AA	**xx** = EQ point number	69 41 43 55 01 5D 21 **xx yy** AA	**xx** – EQ point number **yy** – EQ frequency
EQ frequency adjust by step -	69 41 43 55 01 21 01 **xx** 02 AA	**xx** = EQ point number	69 41 43 55 01 5D 21 **xx yy** AA	**xx** – EQ point number **yy** – EQ frequency
EQ frequency direct setup	69 41 43 55 01 22 01 **xx yy** AA	**xx** – EQ point number **yy** – EQ frequency	69 41 43 55 01 5D 21 **xx yy** AA	**xx** – EQ point number **yy** – EQ gain value

Operation

Function	Command (CH1 01 CH2 02)	Control bytes xx	Feedback	Data bytes xx
EQ gain adjust by step +	69 41 43 55 01 23 01 **xx** 01 AA	**xx** = EQ point number	69 41 43 55 01 5D 23 **xx yy** AA	**xx** – EQ point number **yy** – EQ gain value
EQ gain adjust by step -	69 41 43 55 01 23 01 **xx** 02 AA	**xx** = EQ point number	69 41 43 55 01 5D 23 **xx yy** AA	**xx** – EQ point number **yy** – EQ gain value
EQ gain setup	69 41 43 55 01 24 01 **xx yy** AA	**xx** – EQ point number **yy** – EQ gain value	69 41 43 55 01 5D 23 **xx yy** AA	**xx** – EQ point number **yy** – EQ gain value
EQ Q factor adjust by step +	69 41 43 55 01 25 01 **xx** 01 AA	**xx** = EQ point number	69 41 43 55 01 5D 25 **xx yy** AA	**xx** – EQ point number **yy** – Q factor value
EQ Q factor adjust by step -	69 41 43 55 01 25 01 **xx** 02 AA	**xx** = EQ point number	69 41 43 55 01 5D 25 **xx yy** AA	**xx** – EQ point number **yy** – Q factor value
EQ Q factor direct setup	69 41 43 55 01 26 01 **xx yy** AA	**xx** – EQ point number **yy** – Q factor value	69 41 43 55 01 5D 25 **xx yy** AA	**xx** – EQ point number **yy** – Q factor value
INPUT GATE	69 41 43 55 0D 15 01 **xx** AA	**00** – disabled **01** - enabled	69 41 43 55 0D 5D 15 **xx** AA	**00** – disabled **01** - enabled
INPUT MODE (iAC 2x240 DSP only)	69 41 43 55 0D 14 01 **xx** AA	**00** - IN1->OUT1 IN2->OUT2 **01** - IN1->OUT2 IN2->OUT1 **02** - IN1->OUT1 IN1->OUT2 **03** - IN2->OUT1 IN2->OUT2	69 41 43 55 0D 5D 14 **xx** AA	**00** - IN1->OUT1 IN2->OUT2 **01** - IN1->OUT2 IN2->OUT1 **02** - IN1->OUT1 IN1->OUT2 **03** - IN2->OUT1 IN2->OUT2
FAN MODE	69 41 43 55 0D 13 01 **xx** AA	**00** – off **01** - auto	69 41 43 55 0D 5D 13 **xx** AA	**00** – off **01** - auto

Operation

Function	Command (CH1 01 CH2 02)	Control bytes xx	Feedback	Data bytes xx
RESET	69 41 43 55 0D 12 01 01 AA		69 41 43 55 0D 5D 12 01 AA	
LOCK/UNLOCK	69 41 43 55 0D 11 01 **xx** AA	**00** = unlock **01** = lock	69 41 43 55 0D 5D 11 **xx** AA	**00** = unlocked **01** = locked
STANDBY	69 41 43 55 0D 10 01 **xx** AA	**00** = off **01** = on	69 41 43 55 0D 5D 10 **xx** AA	**00** = off **01** = on
FIRMWARE VERSION	69 41 43 55 01 FF 01 00 AA		69 41 43 55 01 5D FF 32 AA (Firmware version on screen)	
READ AMP STATUS	69 41 43 55 01 FA 01 00 AA		Returns all amplifier's data	

VOLUME LEVEL control bytes						
00 = 0 dB	07 = -7 dB	0E = -14 dB	15 = -21 dB	1C = -28 dB	23 = -35 dB	2A = -42 dB
01 = -1 dB	08 = -8 dB	0F = -15 dB	16 = -22 dB	1D = -29 dB	24 = -36 dB	2B = -43 dB
02 = -2 dB	09 = -9 dB	10 = -16 dB	17 = -23 dB	1E = -30 dB	25 = -37 dB	2C = -44 dB
03 = -3 dB	0A = -10 dB	11 = -17 dB	18 = -24 dB	1F = -31 dB	26 = -38 dB	2D = -45 dB
04 = -4 dB	0B = -11 dB	12 = -18 dB	19 = -25 dB	20 = -32 dB	27 = -39 dB	2E = -46 dB
05 = 5 dB	0C = -12 dB	13 = -19 dB	1A = -26 dB	21 = -33 dB	28 = -40 dB	2F = -47 dB
06 = -6 dB	0D = -13 dB	14 = -20 dB	1B = -27 dB	22 = -34 dB	29 = -41 dB	

Operation

GAIN LEVEL control bytes						
00 = -12 dB	04 = -8 dB	08 = -4 dB	0C = 0 dB	10 = 4 dB	14 = 8 dB	18 = 12 dB
01 = -11 dB	05 = -7 dB	09 = -3 dB	0D = 1 dB	11 = 5 dB	15 = 9 dB	
02 = -10 dB	06 = -6 dB	0A = -2 dB	0E = 2 dB	12 = 6 dB	16 = 10 dB	
03 = -9 dB	07 = -5 dB	0B = -1 dB	0F = 3 dB	13 = 7 dB	17 = 11 dB	

LOW PASS control bytes						
00 = 20 Hz	02 = 60 Hz	04 = 100 Hz	06 = 140 Hz	08 = 180 Hz	0A = OFF	
01 = 40 Hz	03 = 80 Hz	05 = 120 Hz	07 = 160 Hz	09 = 200 Hz		

HIGH PASS control bytes						
00 = 20 Hz	06 = 80 Hz	0C = 140 Hz	12 = 200 Hz	18 = 260 Hz	1E = 320 Hz	24 = 380 Hz
01 = 30 Hz	07 = 90 Hz	0D = 150 Hz	13 = 210 Hz	19 = 270 Hz	1F = 330 Hz	25 = 390 Hz
02 = 40 Hz	08 = 100 Hz	0E = 160 Hz	14 = 220 Hz	1A = 280 Hz	20 = 340 Hz	26 = 400 Hz
03 = 50 Hz	09 = 110 Hz	0F = 170 Hz	15 = 230 Hz	1B = 290 Hz	21 = 350 Hz	
04 = 60 Hz	0A = 120 Hz	10 = 180 Hz	16 = 240 Hz	1C = 300 Hz	22 = 360 Hz	
05 = 70 Hz	0B = 130 Hz	11 = 190 Hz	17 = 250 Hz	1D = 310 Hz	23 = 370 Hz	

Operation

LIMITER threshold control bytes						
00 = 0 dB	05 = -5 dB	0A = -10 dB	0F = -15 dB	14 = -20 dB	19 = -25 dB	1E = -30 dB
01 = -1 dB	06 = -6 dB	0B = -11 dB	10 = -16 dB	15 = -21 dB	1A = -26 dB	
02 = -2 dB	07 = -7 dB	0C = -12 dB	11 = -17 dB	16 = -22 dB	1B = -27 dB	
03 = -3 dB	08 = -8 dB	0D = -13 dB	12 = -18 dB	17 = -23 dB	1C = -28 dB	
04 = -4 dB	09 = -9 dB	0E = -14 dB	13 = -19 dB	18 = -24 dB	1D = -29 dB	

EQ point number control bytes						
00 = EQ1	01 = EQ2	02 = EQ3	03 = EQ4	04 = EQ5	05 = EQ6	

EQ frequency control bytes						
00 = 20 Hz	06 = 80 Hz	0C = 500 Hz	12 = 2 kHz	18 = 8 kHz	1E = 14 kHz	24 = 20 kHz
01 = 30 Hz	07 = 90 Hz	0D = 600 Hz	13 = 3 kHz	19 = 9 kHz	1F = 15 kHz	
02 = 40 Hz	08 = 100 Hz	0E = 700 Hz	14 = 4 kHz	1A = 10 kHz	20 = 16 kHz	
03 = 50 Hz	09 = 200 Hz	0F = 800 Hz	15 = 5 kHz	1B = 11 kHz	21 = 17 kHz	
04 = 60 Hz	0A = 300 Hz	10 = 900 Hz	16 = 6 kHz	1C = 12 kHz	22 = 18 kHz	
05 = 70 Hz	0B = 400 Hz	11 = 1 kHz	17 = 7 kHz	1D = 13 kHz	23 = 19 kHz	

Operation

EQ gain control bytes						
00 = -14 dB	03 = -8 dB	06 = -2 dB	0D = 4 dB	0A = 10 dB		
01 = -12 dB	04 = -6 dB	07 = 0 dB	0C = 6 dB	09 = 12 dB		
02 = -10 dB	05 = -4 dB	0E = 2 dB	0B = 8dB	08 = 14 dB		

Q factor control bytes						
00 = 0.5	04 = 2.5	08 = 4.5	0C = 6.5	10 = 8.5	14 = 10.5	
01 = 1	05 = 3	09 = 5	0D = 7	11 = 9	15 = 11	
02 = 1.5	06 = 3.5	0A = 5.5	0E = 7.5	12 = 9.5	16 = 11.5	
03 = 2	07 = 4	0B = 6	0F = 8	13 = 10	17 = 12	

Operation

DELAY time control bytes						
00 00 = 0 ms	00 48 = 72 ms	00 90 = 144 ms	00 D8 = 216 ms	01 20 = 288 ms	01 68 = 360 ms	01 B0 = 432 ms
00 01 = 1 ms	00 49 = 73 ms	00 91 = 145 ms	00 D9 = 217 ms	01 21 = 289 ms	01 69 = 361 ms	01 B1 = 433 ms
00 02 = 2 ms	00 4A = 74 ms	00 92 = 146 ms	00 DA = 218 ms	01 22 = 290 ms	01 6A = 362 ms	01 B2 = 434 ms
00 03 = 3 ms	00 4B = 75 ms	00 93 = 147 ms	00 DB = 219 ms	01 23 = 291 ms	01 6B = 363 ms	01 B3 = 435 ms
00 04 = 4 ms	00 4C = 76 ms	00 94 = 148 ms	00 DC = 220 ms	01 24 = 292 ms	01 6C = 364 ms	01 B4 = 436 ms
00 05 = 5 ms	00 4D = 77 ms	00 95 = 149 ms	00 DD = 221 ms	01 25 = 293 ms	01 6D = 365 ms	01 B5 = 437 ms
00 06 = 6 ms	00 4E = 78 ms	00 96 = 150 ms	00 DE = 222 ms	01 26 = 294 ms	01 6E = 366 ms	01 B6 = 438 ms
00 07 = 7 ms	00 4F = 79 ms	00 97 = 151 ms	00 DF = 223 ms	01 27 = 295 ms	01 6F = 367 ms	01 B7 = 439 ms
00 08 = 8 ms	00 50 = 80 ms	00 98 = 152 ms	00 E0 = 224 ms	01 28 = 296 ms	01 70 = 368 ms	01 B8 = 440 ms
00 09 = 9 ms	00 51 = 81 ms	00 99 = 153 ms	00 E1 = 225 ms	01 29 = 297 ms	01 71 = 369 ms	01 B9 = 441 ms
00 0A = 10 ms	00 52 = 82 ms	00 9A = 154 ms	00 E2 = 226 ms	01 2A = 298 ms	01 72 = 370 ms	01 BA = 442 ms
00 0B = 11 ms	00 53 = 83 ms	00 9B = 155 ms	00 E3 = 227 ms	01 2B = 299 ms	01 73 = 371 ms	01 BB = 443 ms
00 0C = 12 ms	00 54 = 84 ms	00 9C = 156 ms	00 E4 = 228 ms	01 2C = 300 ms	01 74 = 372 ms	01 BC = 444 ms
00 0D = 13 ms	00 55 = 85 ms	00 9D = 157 ms	00 E5 = 229 ms	01 2D = 301 ms	01 75 = 373 ms	01 BD = 445 ms
00 0E = 14 ms	00 56 = 86 ms	00 9E = 158 ms	00 E6 = 230 ms	01 2E = 302 ms	01 76 = 374 ms	01 BE = 446 ms

Operation

DELAY time control bytes						
00 0F = 15 ms	00 57 = 87 ms	00 9F = 159 ms	00 E7 = 231 ms	01 2F = 303 ms	01 77 = 375 ms	01 BF = 447 ms
00 10 = 16 ms	00 58 = 88 ms	00 A0 = 160 ms	00 E8 = 232 ms	01 30 = 304 ms	01 78 = 376 ms	01 C0 = 448 ms
00 11 = 17 ms	00 59 = 89 ms	00 A1 = 161 ms	00 E9 = 233 ms	01 31 = 305 ms	01 79 = 377 ms	01 C1 = 449 ms
00 12 = 18 ms	00 5A = 90 ms	00 A2 = 162 ms	00 EA = 234 ms	01 32 = 306 ms	01 7A = 378 ms	01 C2 = 450 ms
00 13 = 19 ms	00 5B = 91 ms	00 A3 = 163 ms	00 EB = 235 ms	01 33 = 307 ms	01 7B = 379 ms	01 C3 = 451 ms
00 14 = 20 ms	00 5C = 92 ms	00 A4 = 164 ms	00 EC = 236 ms	01 34 = 308 ms	01 7C = 380 ms	01 C4 = 452 ms
00 15 = 21 ms	00 5D = 93 ms	00 A5 = 165 ms	00 ED = 237 ms	01 35 = 309 ms	01 7D = 381 ms	01 C5 = 453 ms
00 16 = 22 ms	00 5E = 94 ms	00 A6 = 166 ms	00 EE = 238 ms	01 36 = 310 ms	01 7E = 382 ms	01 C6 = 454 ms
00 17 = 23 ms	00 5F = 95 ms	00 A7 = 167 ms	00 EF = 239 ms	01 37 = 311 ms	01 7F = 383 ms	01 C7 = 455 ms
00 18 = 24 ms	00 60 = 96 ms	00 A8 = 168 ms	00 F0 = 240 ms	01 38 = 312 ms	01 80 = 384 ms	01 C8 = 456 ms
00 19 = 25 ms	00 61 = 97 ms	00 A9 = 169 ms	00 F1 = 241 ms	01 39 = 313 ms	01 81 = 385 ms	01 C9 = 457 ms
00 1A = 26 ms	00 62 = 98 ms	00 AA = 170 ms	00 F2 = 242 ms	01 3A = 314 ms	01 82 = 386 ms	01 CA = 458 ms
00 1B = 27 ms	00 62 = 99 ms	00 AB = 171 ms	00 F3 = 243 ms	01 3B = 315 ms	01 83 = 387 ms	01 CB = 459 ms
00 1C = 28 ms	00 64 = 100 ms	00 AC = 172 ms	00 F4 = 244 ms	01 3C = 316 ms	01 84 = 388 ms	01 CC = 460 ms
00 1D = 29 ms	00 65 = 101 ms	00 AD = 173 ms	00 F5 = 245 ms	01 3D = 317 ms	01 85 = 389 ms	01 CD = 461 ms

Operation

DELAY time control bytes						
00 1E = 30 ms	00 66 = 102 ms	00 AE = 174 ms	00 F6 = 246 ms	01 3E = 318 ms	01 86 = 390 ms	01 CE = 462 ms
00 1F = 31 ms	00 67 = 103 ms	00 AF = 175 ms	00 F7 = 247 ms	01 3F = 319 ms	01 87 = 391 ms	01 CF = 463 ms
00 20 = 32 ms	00 68 = 104 ms	00 B0 = 176 ms	00 F8 = 248 ms	01 40 = 320 ms	01 88 = 392 ms	01 D0 = 464 ms
00 21 = 33 ms	00 69 = 105 ms	00 B1 = 177 ms	00 F9 = 249 ms	01 41 = 321 ms	01 89 = 393 ms	01 D1 = 465 ms
00 22 = 34 ms	00 6A = 106 ms	00 B2 = 178 ms	00 FA = 250 ms	01 42 = 322 ms	01 8A = 394 ms	01 D2 = 466 ms
00 23 = 35 ms	00 6B = 107 ms	00 B3 = 179 ms	00 FB = 251 ms	01 43 = 323 ms	01 8B = 395 ms	01 D3 = 467 ms
00 24 = 36 ms	00 6C = 108 ms	00 B4 = 180 ms	00 FC = 252 ms	01 44 = 324 ms	01 8C = 396 ms	01 D4 = 468 ms
00 25 = 37 ms	00 6D = 109 ms	00 B5 = 181 ms	00 FD = 253 ms	01 45 = 325 ms	01 8D = 397 ms	01 D5 = 469 ms
00 26 = 38 ms	00 6E = 110 ms	00 B6 = 182 ms	00 FE = 254 ms	01 46 = 326 ms	01 8E = 398 ms	01 D6 = 470 ms
00 27 = 39 ms	00 6F = 111 ms	00 B7 = 183 ms	00 FF = 255 ms	01 47 = 327 ms	01 8F = 399 ms	01 D7 = 471 ms
00 28 = 40 ms	00 70 = 112 ms	00 B8 = 184 ms	01 00 = 256 ms	01 48 = 328 ms	01 90 = 400 ms	01 D8 = 472 ms
00 29 = 41 ms	00 71 = 113 ms	00 B9 = 185 ms	01 01 = 257 ms	01 49 = 329 ms	01 91 = 401 ms	01 D9 = 473 ms
00 2A = 42 ms	00 72 = 114 ms	00 BA = 186 ms	01 02 = 258 ms	01 4A = 330 ms	01 92 = 402 ms	01 DA= 474 ms
00 2B = 43 ms	00 73 = 115 ms	00 BB = 187 ms	01 03 = 259 ms	01 4B = 331 ms	01 93 = 403 ms	01 DB = 475 ms
00 2C = 44 ms	00 74 = 116 ms	00 BC = 188 ms	01 04 = 260 ms	01 4C = 332 ms	01 94 = 404 ms	01 DC = 476 ms

Operation

DELAY time control bytes						
00 2D = 45 ms	00 75 = 117 ms	00 BD = 189 ms	01 05 = 261 ms	01 4B = 333 ms	01 95 = 405 ms	01 DD = 477 ms
00 2E = 46 ms	00 76 = 118 ms	00 BE = 190 ms	01 06 = 262 ms	01 4E = 334 ms	01 96 = 406 ms	01 DE = 478 ms
00 2F = 47 ms	00 77 = 119 ms	00 BF = 191 ms	01 07 = 263 ms	01 4F = 335 ms	01 97 = 407 ms	01 DE = 479 ms
00 30 = 48 ms	00 78 = 120 ms	00 C0 = 192 ms	01 08 = 264 ms	01 50 = 336 ms	01 98 = 408 ms	01 E0 = 480 ms
00 31 = 49 ms	00 79 = 121 ms	00 C1 = 193 ms	01 09 = 265 ms	01 51 = 337 ms	01 99 = 409 ms	01 E1 = 481 ms
00 32 = 50 ms	00 7A = 122 ms	00 C2 = 194 ms	01 0A = 266 ms	01 52 = 338 ms	01 9A = 410 ms	01 E2 = 482 ms
00 33 = 51 ms	00 7B = 123 ms	00 C3 = 195 ms	01 0B = 267 ms	01 53 = 339 ms	01 9B = 411 ms	01 E3 = 483 ms
00 34 = 52 ms	00 7C = 124 ms	00 C4 = 196 ms	01 0C = 268 ms	01 54 = 340 ms	01 9C = 412 ms	01 E4 = 484 ms
00 35 = 53 ms	00 7D = 125 ms	00 C5 = 197 ms	01 0D = 269 ms	01 55 = 341 ms	01 9D = 413 ms	01 E5 = 485 ms
00 36 = 54 ms	00 7E = 126 ms	00 C6 = 198 ms	01 0E = 270 ms	01 56 = 342 ms	01 9E = 414 ms	01 E6 = 486 ms
00 37 = 55 ms	00 7F = 127 ms	00 C7 = 199 ms	01 0F = 271 ms	01 57 = 343 ms	01 9F = 415 ms	01 E7 = 487 ms
00 38 = 56 ms	00 80 = 128 ms	00 C8 = 200 ms	01 10 = 272 ms	01 58 = 344 ms	01 A0 = 416 ms	01 E8 = 488 ms
00 39 = 57 ms	00 81 = 129 ms	00 C9 = 201 ms	01 11 = 273 ms	01 59 = 345 ms	01 A1 = 417 ms	01 E9 = 489 ms
00 3A = 58 ms	00 82 = 130 ms	00 CA = 202 ms	01 12 = 274 ms	01 5A = 346 ms	01 A2 = 418 ms	01 EA = 490 ms
00 38 = 59 ms	00 83 = 131 ms	00 CB = 203 ms	01 13 = 275 ms	01 5B = 347 ms	01 A3 = 419 ms	01 EB = 491 ms

Operation

DELAY time control bytes						
00 3C = 60 ms	00 84 = 132 ms	00 CC = 204 ms	01 14 = 276 ms	01 5C = 348 ms	01 A4 = 420 ms	01 EC = 492 ms
00 3D = 61 ms	00 85 = 133 ms	00 CD = 205 ms	01 15 = 277 ms	01 5D = 349 ms	01 A5 = 421 ms	01 ED = 493 ms
00 3E = 62 ms	00 86 = 134 ms	00 CE = 206 ms	01 16 = 278 ms	01 5E = 350 ms	01 A6 = 422 ms	01 EE = 494 ms
00 3F = 63 ms	00 87 = 135 ms	00 CF = 207 ms	01 17 = 279 ms	01 5F = 351 ms	01 A7 = 423 ms	01 EF = 495 ms
00 40 = 64 ms	00 88 = 136 ms	00 D0 = 208 ms	01 18 = 280 ms	01 60 = 352 ms	01 A8 = 424 ms	01 F0 = 496 ms
00 41 = 65 ms	00 89 = 137 ms	00 D1 = 209 ms	01 19 = 281 ms	01 61 = 353 ms	01 A9 = 425 ms	01 F1 = 497 ms
00 42 = 66 ms	00 8A = 138 ms	00 D2 = 210 ms	01 1A = 282 ms	01 62 = 354 ms	01 AA = 426 ms	01 F2 = 498 ms
00 43 = 67 ms	00 8B = 139 ms	00 D3 = 211 ms	01 1B = 283 ms	01 63 = 355 ms	01 AB = 427 ms	01 F3 = 499 ms
00 44 = 68 ms	00 8C = 140 ms	00 D4 = 212 ms	01 1C = 284 ms	01 64 = 356 ms	01 AC = 428 ms	01 F4 = 500 ms
00 45 = 69 ms	00 8D = 141 ms	00 D5 = 213 ms	01 1D = 285 ms	01 65 = 357 ms	01 AD = 429 ms	
00 46 = 70 ms	00 8E = 142 ms	00 D6 = 214 ms	01 1E = 286 ms	01 66 = 358 ms	01 AE = 430 ms	
00 47 = 71 ms	00 8F = 143 ms	00 D7 = 215 ms	01 1F = 287 ms	01 67 = 359 ms	01 AF = 431 ms	

General Specifications

iAC Installation Power Amplifier

Technical Specifications	iAC 120 DSP	iAC 240 DSP	iAC 360 DSP	iAC 2X240 DSP
Output power	1 x 120 W	1 x 240 W	1 x 360 W	2 x 240 W
Bridged output power	n/a			1 x 480 W (100 V only)
Max power consumption	180 VA	360 VA	540 VA	720 VA
Stand by power consumption	10 VA	10 VA	10 VA	20 VA
Power supply	~ 230 V, 50 Hz			
Outputs	1 x Phoenix power output, 1 x Phoenix audio link			2 x Phoenix output, 2 x Phoenix audio link
Inputs	1 x Balanced Phoenix, 1 x Stereo RCA			2 x Balanced Phoenix, 2 x Stereo RCA
Frequency Response (100 V)	120 Hz - 20 kHz			
Frequency Response (4 ohm)	32 Hz - 21 kHz	31 Hz - 20 kHz	31 Hz - 20 kHz	35 Hz - 21 kHz
THD @ rated power	0,07 %	0,20 %	0,25 %	0,16 %
S/N ratio	95 dB	92 dB	98 dB	94 dB
Input sensitivity	1 dBu	0 dBu	2 dBu	1 dBu
Input impedance	Balanced: 11 kΩ, unbalanced 8 kΩ			
Remote control	RS-232			
Tone control	6-band parametric EQ			
Cooling	Passive cooling	Forced air cooling with manual / auto control		
Dimensions (H x W x D)	44 x 430 x 245 mm	88 x 430 x 342 mm		
Weight	5 kg	8 kg	9.4 kg	11.5 kg

The specifications are correct at the time of printing this manual. For improvement purposes, all specifications for this unit, including design and appearance, are subject to change without prior notice.

Notes

AMC is a registered trademark of AMC Baltic | **www.amcpro.eu**