MCA7004t | MCA10004t | Install Instructions For:

MCA7004t, MCA10004t

DANTE ENABLED NETWORKING AMPLIFIER INSTALLATION MANUAL

Please read this user manual in detail before use.

Please consult the MCA7004t / MCA10004t Software Manual for instructions on how to use the STNet MCA Control PC Software. Manual can be found on the Downloads page at www.soundtube.com or on the MCA7004t or MCA10004t product webpages.

Warning

SoundTube amplifiers must be installed by a professional audio installer/contractor. For safety and for optimum audio performance, installer must follow all directions issued by SoundTube Entertainment.

Warning

Do not spec or install amplifier near support beam, ventilation duct or other structure that may interfere with amplifier function or dispersion.

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1. Product Description

The SOUNDTUBE ENTERTAINMENT MCA7004t and MCA10004t multichannel amplifiers are Dante enabled and allow for fixed resistance and fixed voltage output modes. At 4 ohms, these amplifiers offer 700W and 1000W per channel, respectively. The 4.3" LCD touchscreen on the front panel allows for easy access to gain controls, input matrixing, and output mode selection. The STNet MCA Control software (included) provides the user with complete control over the amplifier. This software enables the user to monitor the real-time status of the amplifier and set up various DSP functions in real time. These DSP features include functions such as compressor, limiter, noise gate, parametric equalization, matrix router, delay, and more!

1.1. Applicable Scenarios

- Performing arts centers
- Gymnasiums
- Convention Centers
- Retail Stores
- Theatres
- Hotels
- Shopping Malls
- Restaurants
- House of Worship
- Sports Venues
- Night Clubs

1.2. Product Features

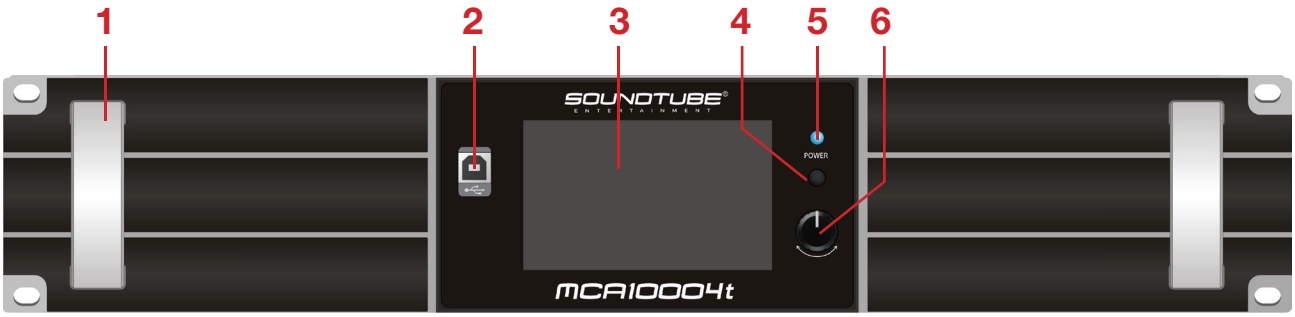
1. Standard 19-inch chassis design with a height of 2U.
2. The high-efficiency switching power supply, coupled with PFC, and class D digital amplifier technology deliver extremely low output distortion and high efficiency.
3. The high-end DSP allows for built-in functions such as compressor, limiter, FIR processor, noise gate, parametric equalizer, matrix router, delay, high and low pass filtering, and other DSP functions.
4. The amplifier supports matrixed and bridged output modes. Matrix mode allows for four independent output channels, while bridged mode will combine two of the four channels and allow for 100V fixed voltage output or high wattage 8 ohm and 16 ohm outputs.
5. Fixed voltage and fixed resistance modes: 4Ω, 8Ω, 16Ω, 70V, 100V,
6. The front panel offers a 4.3-inch IPS display supporting capacitive touch control. Through the front panel display, the user can monitor items such as mains voltage and current, amplifier status, amplifier temperature, output mode, amplifier real-time voltage, current, and power, channel volume, and speaker impedance.
7. The amplifier supports TCP/IP and allows for remote connection to the amplifier using the STNet MCA Control software.
8. Adjustable Input Sensitivity Options: 2dBu/6dBu/12dBu, set through PC software or LCD screen.
9. Supported Input Sources: Analog, AES3 digital audio, and Dante network. AES3 and Dante inputs will be ducked for an analog input on the same channel. Only channels A and C support AES3 digital audio input.
10. The amplifier will automatically calculate the connected speaker's impedance and display the impedance on the front panel display and STNet MCA Control.
11. The amplifier will enter standby when there is no input for 30 minutes. The amplifier will exit standby if input is applied, the power button is held, or the amplifier is commanded through the MCA STNet Control software. The amplifier supports entering and exiting standby remotely through the MCA STNet Control software. "Wake" time is approximately 5 seconds.
12. The amplifier's network TCP/IP function can manage multiple devices and the network interface can be cascaded.
13. The RS485 port can be utilized to support external control.
14. Wide Voltage Operation: 110-240VAC.

2. Technical Parameters

Model	MCA7004t	MCA10004t
Output Power (20-20KHz/THD≤1%)	Stereo/Matrix@16Ω×4: 250W×4 Stereo/Matrix@8Ω×4: 500W×4 Stereo/Matrix@4Ω×4: 700W×4 Bridged @16Ω×2: 700W×2 Bridged @8Ω×2: 1400W×2 Fixed Voltage 70V@9.8Ω: 500Wx4 Bridge Fixed Voltage 100V@10Ω: 1000W×2	Stereo/Matrix@16Ω×4: 350W×4 Stereo/Matrix 8Ω×4: 700W×4 Stereo/Matrix 4Ω×4: 1000W×4 Bridged 16Ω×2: 1000W×2 Bridged 8Ω×2: 2000W×2 Fixed Voltage 70V@6.1Ω: 800W×4 Bridge Fixed Voltage 100V@6.6Ω: 1500W×2
Inputs	Euroblock balanced / unbalanced, DANTE, and AES3 digital audio	
Input Sensitivity	2dBu/6Bu/12dBu	
Input Resistance	20kΩ balanced	
Frequency Response (@1W power)	20Hz-20KHz ±1dB	
THD+N (@1/8 power)	≤0.05%	
SNR (A-weighted)	≥96dB	
Damping Coefficient (@ 1KHz)	≥200@ 8 ohms	
Isolation (@1KHz)	≥95dB	
Protection Method	Over-current protection, DC protection, Short-circuit protection	
Indicator Light	Power, Protection, Distortion	
Cooling Method	Fan cooling	
Power Supply	~110V 50Hz ~110V 60Hz ~120V 50Hz ~120V 60Hz ~220V 50Hz ~220V 60Hz ~230V 50Hz ~230V 60Hz ~240V 50Hz ~240V 60Hz	
Max Power Consumption (all channels driven, pink noise input)	1020W	1380W
1/8 Power Consumption (all channels driven, pink noise input)	720W	1140W
Dimension (L×D×H)	19”x 16.63”x3.47” (484×422.5×88mm)	
Weight	23.3lbs (10.6Kg)	23.3lbs (10.6Kg)

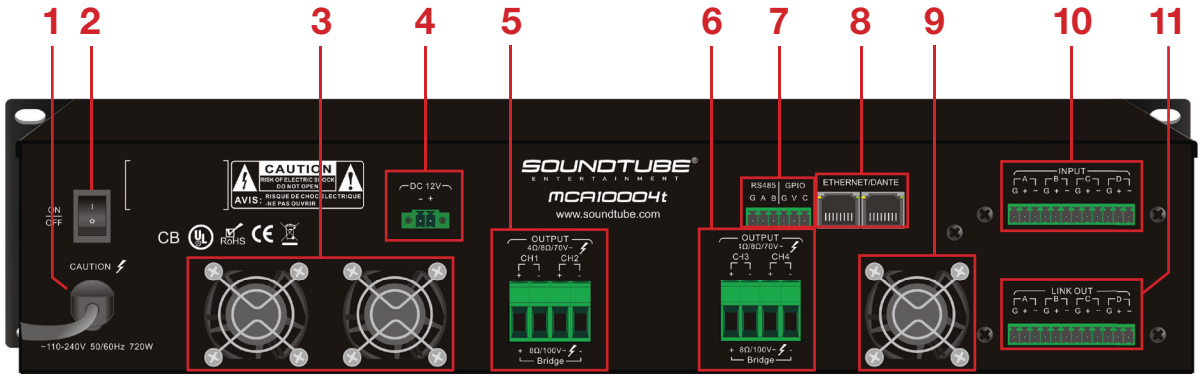
3. Panel Layout

3.1. Front Panel



1. Amplifier handle.
2. USB connection interface: reserved protocol connection interface.
3. 4.3-inch IPS capacitive touch screen.
4. Power switch: When the device is powered on, press and hold this button for 2 seconds to switch between standby and power-on status.
5. Power indicator: BLUE: power on; ORANGE: standby.
6. Gain adjustment knob and selection button: slow rotation for 0.5dB increment change, fast rotation for 5dB increment change.

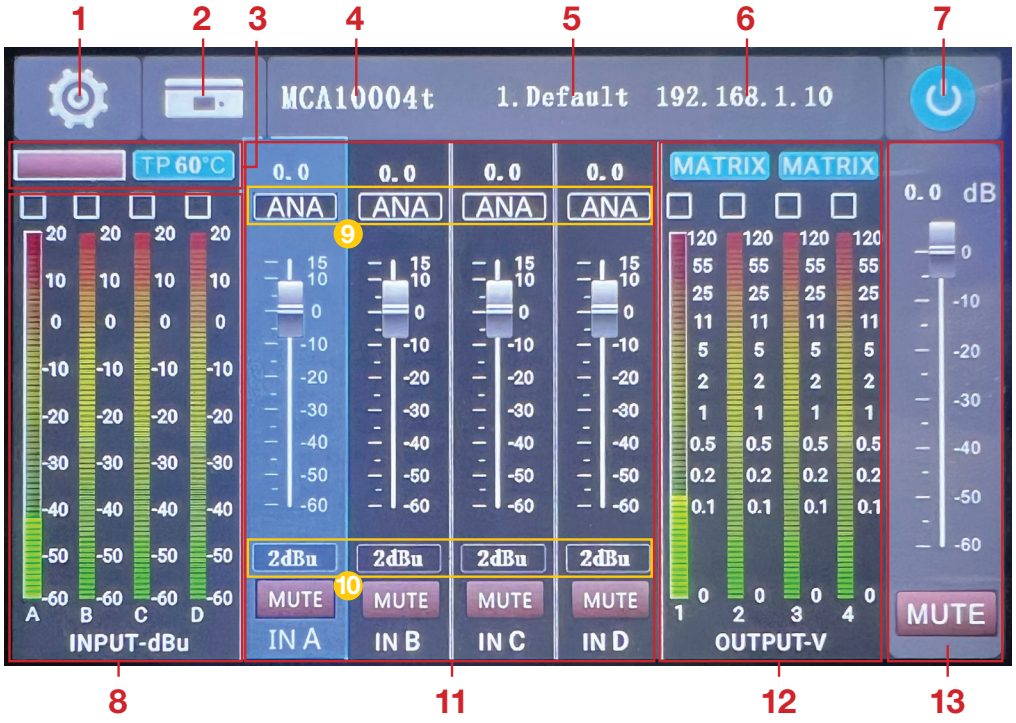
3.2. Rear Panel



1. AC input power cable.
2. AC power switch: ON; OFF.
3. Air outlet.
4. 12V Power Supply Output.
5. Amplifier output channels 1 and 2.
6. Amplifier output channels 3 and 4.
7. GPIO interface (used by manufacturer only)/ RS485 interface: API control.
8. Ethernet and Dante transmission interface. Both ports can be used to connect amplifier to STNet MCA Control and Dante audio transmission; which can be used to cascade multiple devices.
9. Air outlet.
10. Input channel A/B/C/D.
11. LINK OUT: Parallel with the input channel, can be cascaded to the next amplifier.

3.3. Display Panel

3.3.1. Homepage



1. System Settings: Click the gear icon to enter the Input, Output, Channel Ganging, Presets, IP Settings, and Device Details menus. Click the home icon to return to the home page.

2. Amplifier Settings: Click the amplifier settings icon to check the amplifier settings and amplifier status.

3. Amplifier Status and Amplifier Temperature: When the amplifier status is normal, it will be displayed in gray. When one or more channel is faulty, the status will display “PROTECT”. The temperature displayed is the highest temperature value among the four channels. The temperature will be displayed in degrees celcius.

4. Device Name

5. Current Preset: Displays the name of the currently loaded preset. A preset can be saved or loaded through the STNet MCA Control software. The amplifier’s Preset page allows for presets to be loaded. Saving and deleting presets can only be done through the STNet MCA Control PC software.

6. Device IP Address: The Ethernet IP address of the device is used for STNet MCA Control software connection. It can be modified through the IP Settings page.

7. Standby Button: After clicking, the amplifier will enter standby. After entering standby, the screen will turn off and the power indicator will turn orange.

8. Input Channel Level Indication: The maximum input signal is 20dBu. The display meter is set to an input sensitivity of 12dBu, and will NOT be changed even if the sensitivity is set to 2dBu/6dBu.

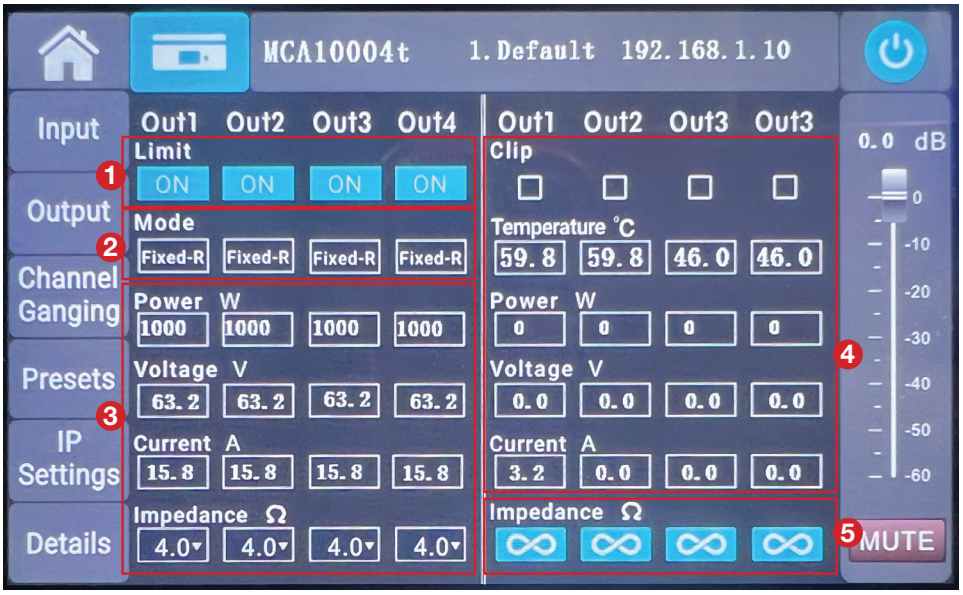
9. Audio Input Type: This displays the current audio input source. ANA is analog input, AES is AES3 digital audio input, DAN is DANTE network audio input. You can select ANA, AES, DAN in the input source of the input interface. If ANA and DAN are input at the same time, the currently selected audio takes precedence.
10. Audio Input Sensitivity: Select the appropriate input sensitivity according to the input source. Choices are 2dBu, 6dBu, and 12dBu, which can be selected in the sensitivity setting on the Input page.

11. Input Channel Gain Adjustment: Click to select the current channel, then adjust the gain by rotating the knob on the right side of the display. Adjustment ranges from -60db - +15db. Pressing the knob or the mute button will mute the channel.

12. Output Level Display and Working Mode: This displays the output amplitude of the channel. When the output amplitude reaches around 90%, the blue light will light up and when the amplifier fails, the red light will light up; MATRIX is working in matrixed mode, BRIDGE is in bridged mode.

13. Master Volume Adjustment: Controls the output of all four channels simultaneously. Click to select the master volume, then adjust the master volume gain by rotating the knob on the right side of the display. Adjustment ranges from -60db - +15db. Pressing the knob or the mute button will mute the channel.

3.3.2. Amplifier Settings Interface



1. Limiter Switch: The limiter can be toggled on or off. When set to constant voltage mode, the limiter will be automatically turned on.

2. Mode Selection: Optional fixed resistance and fixed voltage modes

   - In matrix mode: 1) Fixed resistance 4Ω, 2) Fixed resistance 8Ω, 3) Fixed resistance 16Ω, 4) Fixed voltage 70V.
   - In bridge mode: 1) Fixed resistance 8Ω, 2) Fixed resistance 16Ω, 3) Fixed voltage 100V.

3. Output Channel Parameter Setting: This section is only enabled when the limiter is engaged. These values can be modified to limit the amplifier's output.

   - Set output power (W), output voltage (V), output current (A): Click the value in the box, an input box will pop up, enter the value, click OK to complete the modification (when the input value exceeds the upper limit of this parameter, the maximum value will prevail). If you do not make changes, click ESC to exit. When modifying one of the parameters, the other parameters will change correspondingly according to the selected load impedance.

- Set load impedance (Ω): Click the dropdown symbol to select the same impedance value as the speaker connected to the current channel. If there is no need to change the channel impedance, click the back button to exit. In constant voltage mode, fixed impedance cannot be selected.

4. Realtime Output Monitoring: You can view the peak clipping status, the fault status, the effective power, voltage, and current per each channel, in real time.

5. Output Channel Load Impedance: Displays the current channel impedance, which is detected when it is turned on or when the working mode is changed, but not in constant voltage mode.

3.3.3. Input Settings Interface

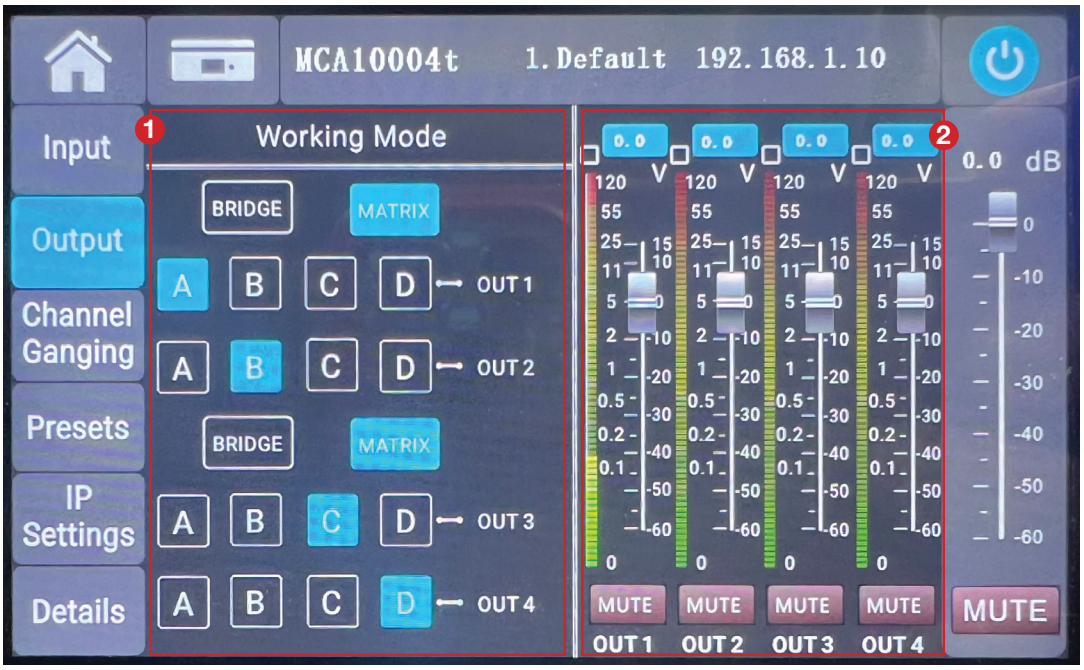
1. Input source selection: Click the dropdown symbol to select ANA (analog input), AES (AES3 digital audio input), or DAN (Dante audio input). A/B or C/D channel changes simultaneously when changing the input source; if you do not change the input source, click the back button to exit.

2. Sensitivity adjustment: The sensitivity of the analog input can be set, and it supports 2dBu (about 1V), 6dBu (about 1.5V), and 12dBu (about 3V) sensitivity switching.

3. Test signal: Pink (pink noise), white (white noise), sine (sine wave) signal output, click the test signal switch on, and the amplifier will output the corresponding signal. Slide the test signal volume slider to adjust the output volume. The Sine (sine wave) signal can be set to any frequency using the STNet MCA Control software. For details, please refer to the STNet MCA Control Manual.

4. Input Channel Gain Adjustment: Click to select the current channel, then adjust the gain by rotating the knob on the right side of the display. Adjustment ranges from -60db - +15db. Pressing the knob or the mute button will mute the channel.

3.3.4. Output Settings Interface



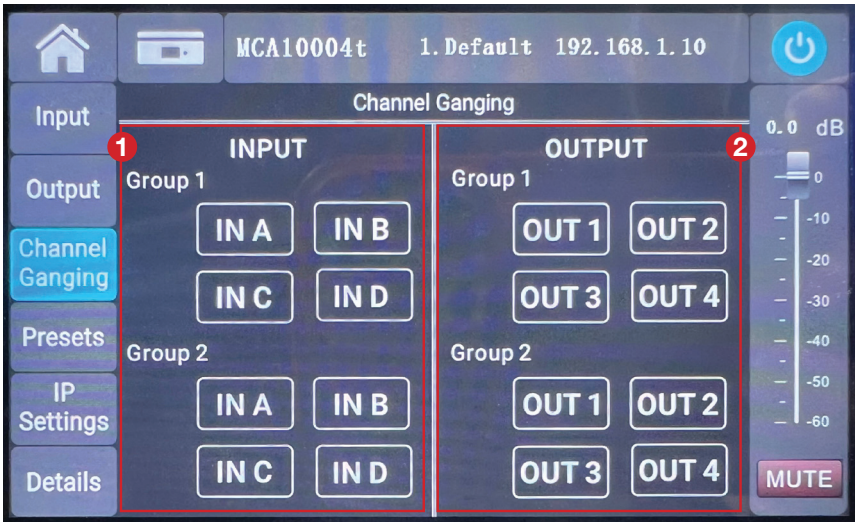
1. Working Mode and Matrix Routing Settings:

   • Working mode setting: BRIDGE sets the output to bridged mode; MATRIX sets the output to matrixed mode. When set to bridged mode, the OUT2 output interface and the OUT4 output interface are disabled. Please refer to the bridge connection diagram of OUT1/OUT3.

   • Matrix routing settings: Any input can be routed to any output via matrix selection.

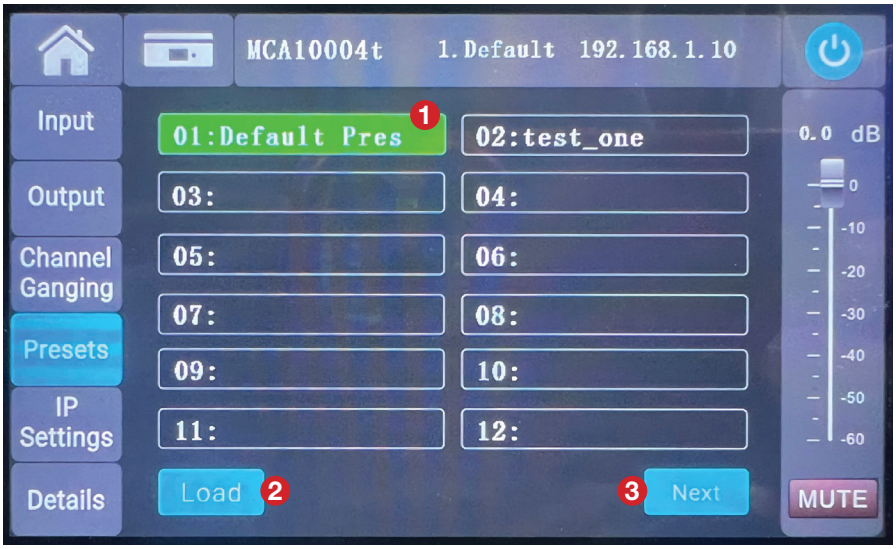
2. Output Channel Gain Adjustment: Click to select the current channel, then adjust the gain by rotating the knob on the right side of the display. Adjustment ranges from -60db - +15db. Pressing the knob or the mute button will mute the channel.

3.3.5. Channel Ganging Interface



1. Input Channel Joint Adjustment: If set in the same group, the gain and mute status of input channels will be adjusted at the same time.
2. Output Channel Joint Adjustment: If set in the same group, the gain and mute status of output channels will be adjusted at the same time.
3. After the working mode is set to BRIDGE, the output channel of the device does not support channel joint adjustment.

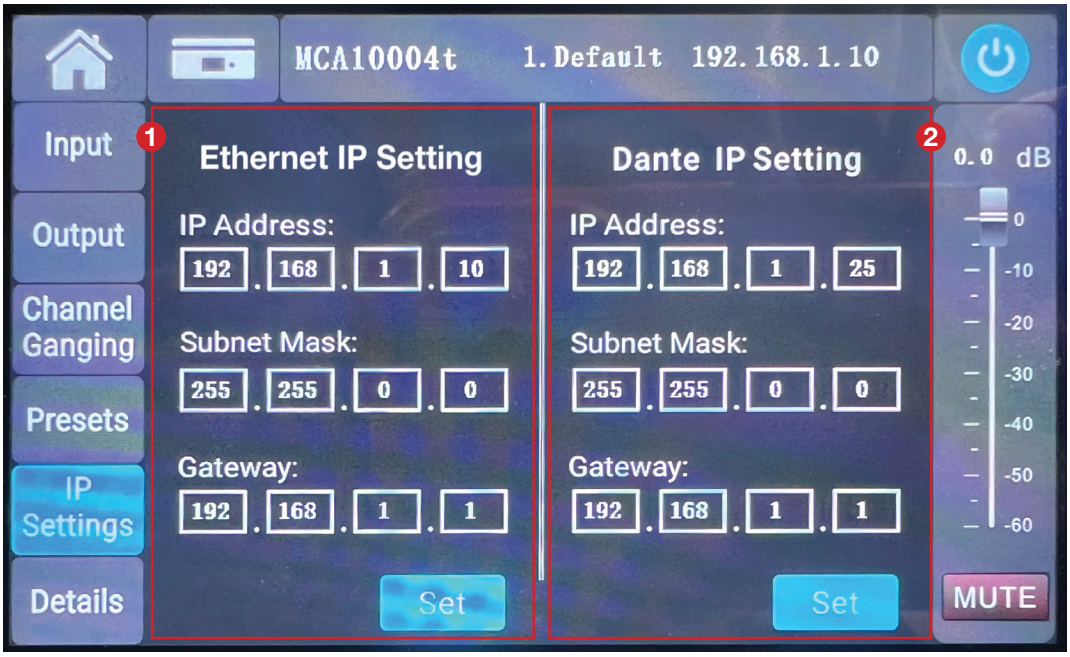
3.3.6. Preset Settings Interface



1. The default preset cannot be deleted. Factory settings can be restored by loading this preset.
2. To load a preset, click the desired preset, then click Load.
3. Press “Next” to view additional Presets. Up to 79 presets can be saved.

Note: Presets can be saved and deleted on the PC interface. The touchscreen can only load presets.

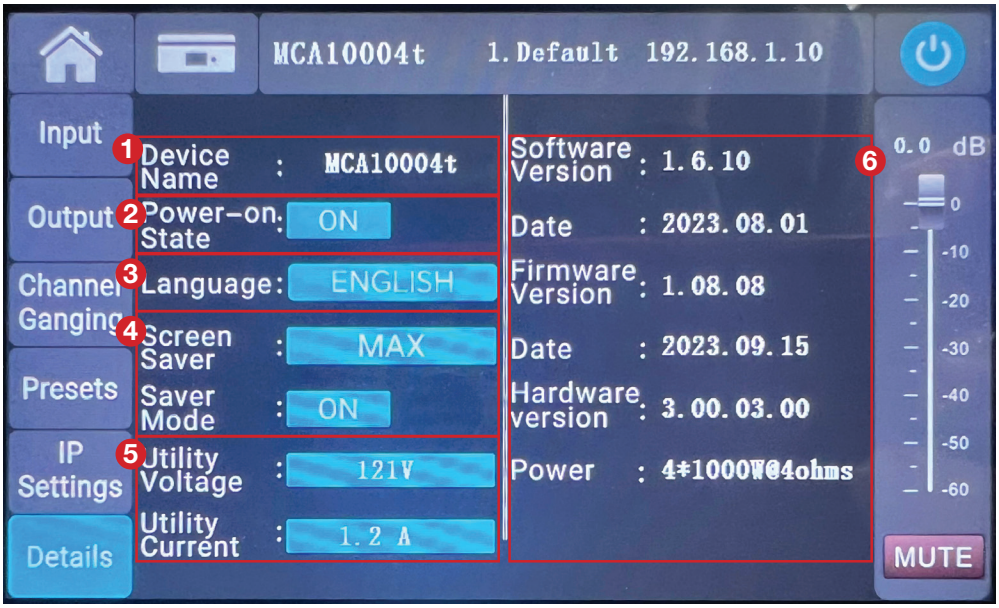
3.3.7. Network IP Settings Interface



1. Ethernet IP Setting: IP address used for STNet MCA Control software connection. To change IP address, click the value to enter the input menu, enter the value, and click ok, then “Set”.

2. Dante IP Setting: IP address used for Dante network audio transmission. To change IP address, click the value to enter the input menu, enter the value, and click ok, then “Set”.

3.3.8. Details Interface



1. Device Name: The device display name is set to MCA7004t or MCA10004t by default. The device name can be modified by clicking the display name, then entering the desired name, and clicking “Complete” to complete the device name modification.

2. Power-On State

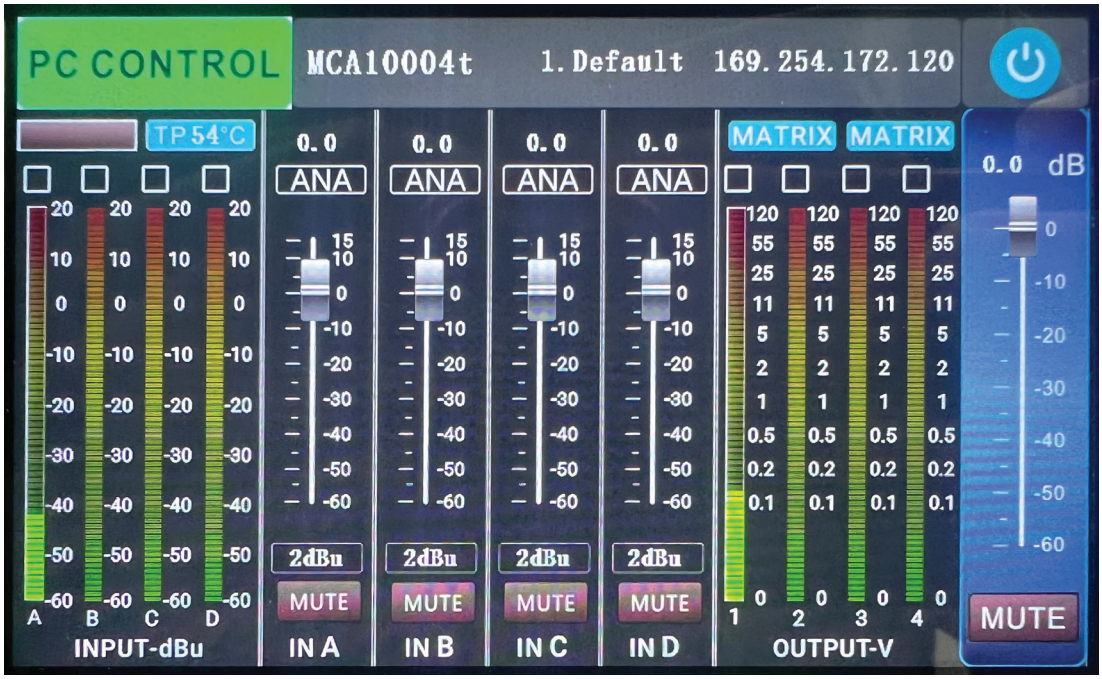
3. Language selection: Used to set the display language. Options are English or simplified Chinese.

4. Screen Saver Time and Screen Saver Mode: Set the screen-off time of the display. Choices are 1 minute, 5 minutes, 10 minutes, and MAX (non-screen off). Screen saver mode is set to ON by default.

5. Mains Voltage and Mains Current: Real-time display of the power supply voltage and current.

6. Amplifier Information: Displays firmware information and device information.

3.3.9. Device Connection



After connecting to the PC software through TCP/IP, “PC CONTROL” appears in the upper left corner of the screen interface, and the interface automatically jumps to the homepage. For PC operation, use STNet MCA Control software.

Note: The UI interface of the display screen is subject to upgrades and changes without prior notice. Please refer to the actual UI interface of the device.

4. Device Wiring Instructions

4.1. Power Cable

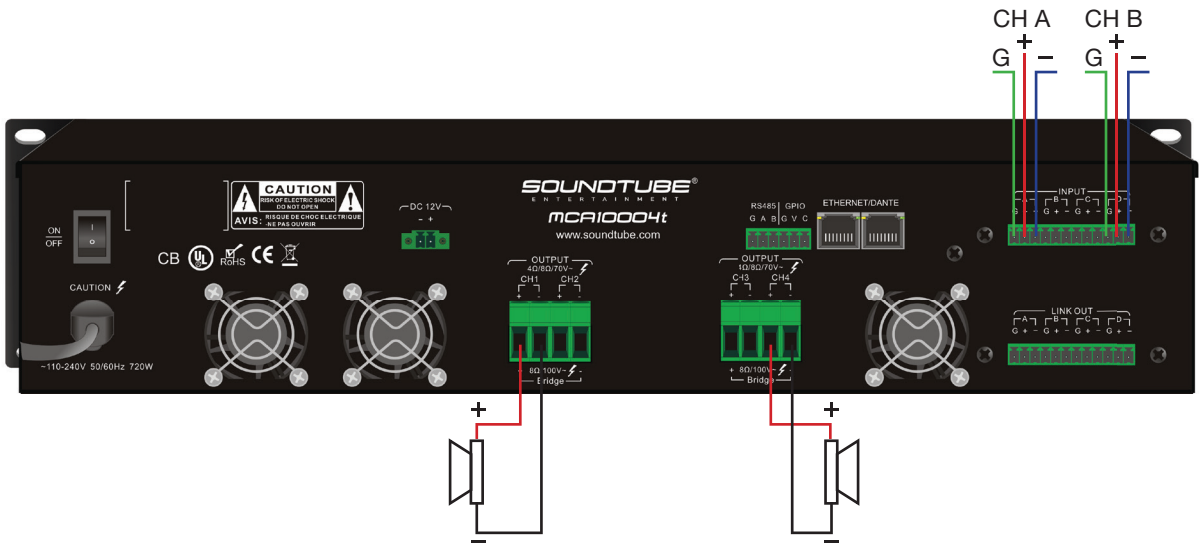
The grounding end of the AC power cable shall be well grounded, otherwise there is a risk of electric shock!

The AC power cable must have sufficient over-current capability, the AC power voltage must be within ±10% of the nominal operating voltage of the device, and the AC power frequency must be within the nominal frequency range of the device (the nominal value is marked on the rear panel of the device).

4.2. Wiring Notes

Use shielded wires as much as possible for the input signal, the higher the shielding layer density, the better. The input signal should use balanced connection as far as possible to reduce noise interference. If using an unbalanced connection, the wire should be as short as possible, preferably no more than 10 ft (3 meters). Weak signal lines should not lay together with strong signal lines such as power lines or amplifier output lines, otherwise noise may be generated. Turn off all equipment before changing any connections, as this may cause damage to your speakers.

4.3. MATRIX Mode

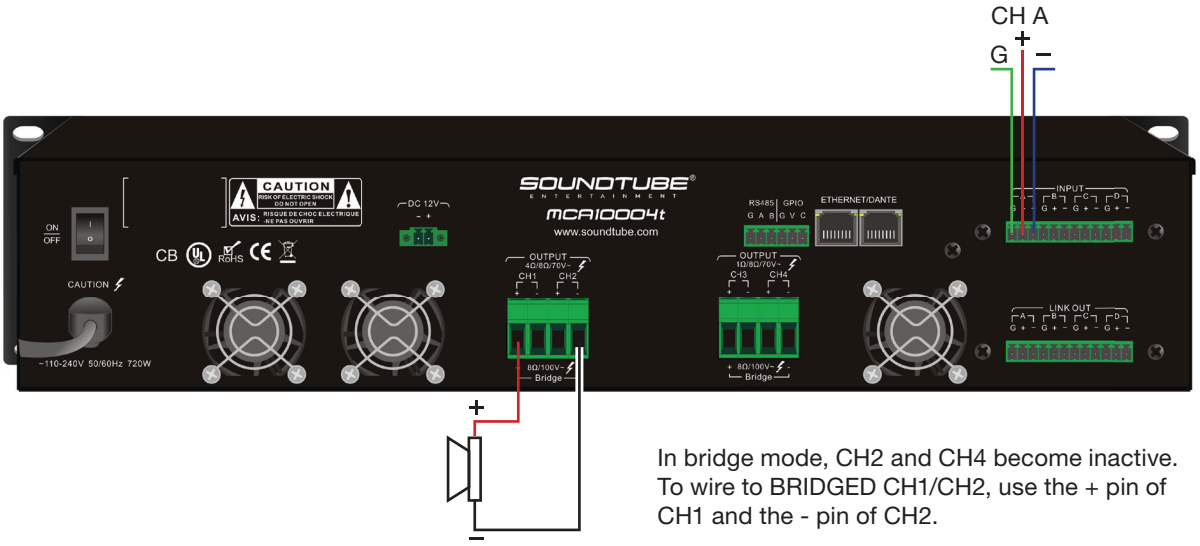


In matrix mode, any input can be routed to any output channel. In this example:

INPUT CH A --> OUTPUT CH1

INPUT CH B --> OUTPUT CH4

4.4. BRIDGE Mode



In bridge mode, CH2 and CH4 become inactive. To wire to BRIDGED CH1/CH2, use the + pin of CH1 and the - pin of CH2.

To wire to BRIDGED CH3/CH4, use the + pin of CH3 and the - pin of CH4.

In this example:
INPUT CH A --> BRIDGED CH1/CH2

5. Mounting Instructions

The MCA7004t and MCA10004t have rack mounting tabs on the front of the amplifier faceplate. Use these tabs to install the amplifier in standard 19” equipment racks. The MCA7004t and MCA10004t occupy two (2) standard rack unit positions each. Screws not included.

6. Precautions

Due to the high power density of this device and the strong magnetic field around it, please keep away from weak signal sensitive devices (preferably ≥ 20CM), otherwise noise may be generated.

Before installation, make sure that the power cable of the device is not connected to the power outlet; the power switch is turned off; the volume knob is fully closed (turn counterclockwise to the limit).

Although the amplifier will be protected under abnormal conditions, to achieve the best performance and highest safety of the amplifier, please pay attention to:

1. Before use, the amplifier needs to be configured, including the connection of input and output lines. Improper wiring can cause the device to not work properly.

2. Be careful when making connections, selecting input signals, and controlling output levels, as this can avoid unnecessary troubles.

3. Do not short-circuit the ground wire of the output cable and the ground wire of the input signal. This will create a ground loop and cause oscillations.

4. Never connect the output terminal to power, battery, or mains. Failure to do so may result in electric shock.

5. Tampering with the circuit and unauthorized modification of the circuit is dangerous and invalidates all services provided by the manufacturer.

6. Do not overload the mixer or it will send a clipped signal to the amplifier. The amplifier will accurately reproduce such signals and the speakers may be damaged.

7. Do not use the amplifier below the nominal load. Too low a load can damage the speaker(s) by causing premature clipping and causing the amplifier to go into protection.

8. After the amplifier is turned on and a signal passes through, there may be a fatal voltage on the output interface, please do not touch it with your hands or metal objects.

Heat dissipation instructions
The heat dissipation method of the device is as follows: cold air is sucked in from the front panel vent, flows through the heat sink inside and takes away the heat, and is discharged from the rear panel fan vent. To ensure good heat dissipation, please place the device in an environment of 0°C – 40°C, and make sure that the front and rear panel air ducts are unobstructed.
If the temperature of the heat sink inside the device exceeds 70°C, the power limit function will be activated, and the output power of the amplifier will be reduced to avoid temperature rise. If the temperature of the radiator continues to rise above 85°C, the amplifier output will be turned off. When the temperature drops to a safe temperature, the amplifier will automatically restart.

Statement of Design Changes
We reserve the right to change the design of any product at any time without notice and assume no obligation to make corresponding changes to previously manufactured products.