

User Manual

Helio

Safety Precautions

1. Prior to operating the product, it is essential to carefully read these instructions. Please keep them for future reference.
2. It is crucial to pay close attention to all warnings given on the product and in the operating instructions. Please adhere strictly to these warnings.
3. Do not use the product near water sources, such as bathtubs, wash bowls, kitchen sinks, laundry tubs, wet basements, swimming pools, and similar areas.
4. Do not expose the product to rain, moisture, dripping, or splashing. Additionally, please avoid placing any objects filled with liquids, including vases and water bottles, on or in the proximity of the device.
5. Do not block or cover any ventilation openings on the cabinet back or bottom. Please avoid placing the product on a bed, sofa, rug, or similar surface that could block the openings. Additionally, refrain from placing the product near a radiator or heat source. If installing the product in a built-in installation, such as a rack, ensure proper ventilation is provided.
6. Keep this product away from heat sources, such as radiators, stoves, or other heat-producing appliances (including amplifiers).
7. Do not tamper with or modify the polarized or grounding-type plug. The polarized plug, with one blade wider than the other, and the grounding-type plug, with two blades and a third grounding prong, are designed to provide safety features. If the provided plug does not fit into your outlet, it is recommended to consult an electrician for the replacement of the outdated outlet.
8. It is important to safeguard the power cord from being stepped on or squeezed, especially at the plugs, convenience receptacles, and the point where they exit from the device.
9. Only use attachments or accessories that are specifically designated by the manufacturer for use with the product.
10. This product should only be used with a cart, stand, tripod, bracket, or table that is specifically recommended by the manufacturer or sold with the apparatus. When utilizing a cart, exercise caution when moving the cart/apparatus to prevent injuries resulting from tipping over. It is important not to place this unit on an unstable cart, stand, tripod, bracket, or table as it may cause serious harm to individuals and significant damage to the device. When moving the unit and cart combination, it is advised to do so with care, avoiding quick stops, excessive force, and uneven surfaces that could potentially lead to the overturning of the product and cart combination.
11. During lightning storms or when the product remains unused for extended periods, it is strongly advised to unplug the unit from the wall outlet and disconnect the cable system. This precautionary measure helps safeguard the unit from potential damage caused by lightning strikes and power surges.
12. Before cleaning, remember to unplug the unit from the wall outlet. Use only a dry cloth for cleaning purposes.
13. For any servicing needs, it is important to seek assistance from qualified personnel. Servicing is necessary if the apparatus has been damaged in any way, such as when the power supply cord or plug is damaged, liquid has been spilled, objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, it does not operate normally, or if it has been dropped. For servicing, please contact: support@arcticdesigncorp.com

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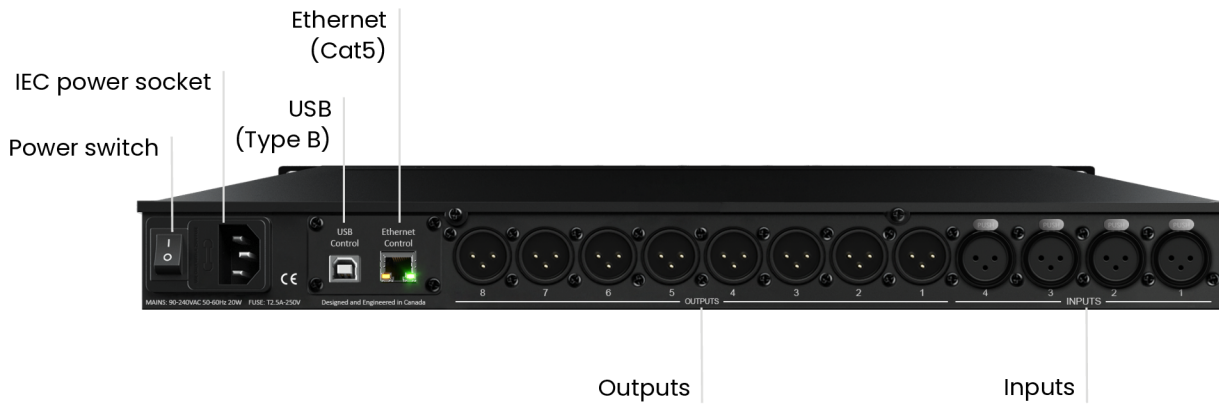
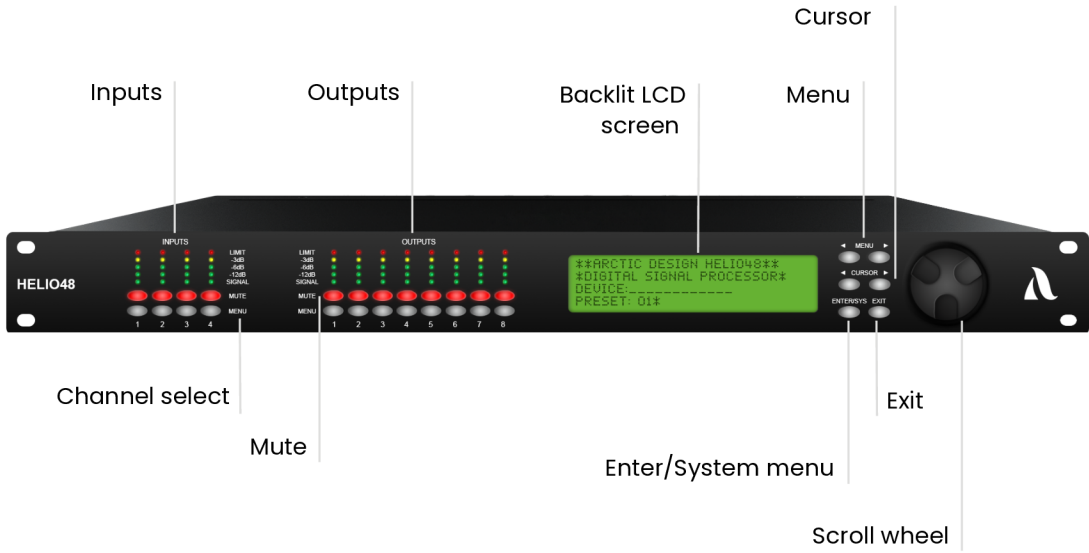
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Helio Overview



Download Arctic Desk

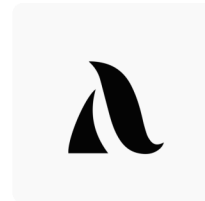
The Arctic Desk software provides optimum configuration of HELIO processors.

Windows requirements:

- PC computer with a processor 1GHz or higher
- Windows 7 or higher
- 500MB of available space
- 1GB graphics card
- 4GB RAM

1. Download the latest version of Arctic Desk from our website (arcticdesigncorp.com).
2. Open the downloaded file.
3. An installation window will appear. Follow the instructions on the screen.
4. During the installation process, there will be an option to download the USB driver. Check the USB driver to be installed as well.
5. Arctic Desk will request permission to allow firewall access. We recommend allowing the software to communicate in Private networks, such as home or work. Allow access to public networks at your own discretion. Click *Allow Access* to finish set up.
6. Arctic Desk is now installed.

7. Once installed, locate the Arctic Desk application on your Desktop or in the Applications folder. Click the application to launch the software.



Arctic Desk

USB Connection

1. Connect a USB cable from back of the processor to your computer.
2. In the Arctic Desk software, navigate to *Setup > Port Connection*.
3. A window will appear. Confirm the connection Type is set to *Serial Port / USB* and that the *Online* box is checked.
4. Click on *Device Manager*.
5. Under *Ports (COM & LPT)*, a Silicon Labs device will display. If this is not displayed, disconnect then reconnect the device.
6. Please note the *COM port* of the device.
7. Navigate back to Arctic Desk and change the *COM Port* to the *COM Port #* that was listed in Device Manager. Make sure that the *Online* box is checked. Then click *OK*.
8. Close and reopen Arctic Desk and the device will now be connected.

Having trouble?

In addition, the COM port must be COM1 to COM8. To check if there is another software program occupying the COM port:

1. Close Arctic Desk if it is open.
2. Open *Terminal* (Either click *Command Prompt* in Arctic Desk, or locate the *Terminal* program on your computer.)
3. Type *Mode COM#* where *COM#* is the *Com Port#* shown in Device Manager for Silicon Labs. If the port is available, it will show the serial port settings. (Don't worry about the values, they are not important.) If it says it is unavailable, then another software program is taking up the port. If the port is available, then set this port number in Arctic Desk. The device should connect successfully.
4. If the device is still not connecting, try rebooting the computer and processor, or connecting via ethernet.

Ethernet Connection

IP Addresses are configured using the device front panel and in Arctic Desk.

1. Connect a Cat5 ethernet cable from the back of the processor to a DHCP-enabled router. Then connect the router to your computer.
2. On the front panel of the device, click the *Enter* button to enter the *System menu*.
3. Use the Menu <> arrows to navigate to the *Ethernet* menu. To configure the device network settings, use the cursor arrows and jog wheel to change the values.
4. Click *Enter* twice to save changes.
5. Once the network settings are confirmed on the processor, open Arctic Desk.
6. Navigate to *Setup > Port Connection*.
7. Change the connection type to *Cat5 Ethernet*. Confirm the *Online* box is checked.
8. Change the device IP address to match the IP address set on your processor.
9. Restart Arctic Desk. The device should connect successfully.

What values should I enter?

1. Navigate to your computer network settings. Note your computer IP address.
2. Set the device IP Address to be the same first 3 group of digits as your computer IP Address but change the last group of digits. (ie. Computer IP Address: 192.168.1.254
Manual Device IP Address: 192.168.1.XXX - where X is any available value from 0-254)
3. The Gateway is the same first 3 groups of digits as your computer IP Address with the last number being 1. (ie. Computer IP Address: 192.168.1.254 ; Device Gateway is: 192.168.1.1)
4. The Subnet is: 255.255.255.0

If you have multiple devices,

Repeat steps 1-4 for each subsequent processor but change the last digit in the IP Address so each device has its own unique IP Address. (Ex. 192.168.1.100 101/102/103/104/105...)

You must also change the device ID using the front panel.

1. From the front panel home screen, press *Enter* to view the *System menu* and use the *Menu <>* arrows to navigate to the *Communication* settings.
2. Change the *device ID* using the jog wheel and press *Enter* twice to confirm the change. Reboot the processor for the change to take effect.
3. In Arctic Desk, navigate to *Setup > Port Connection*. Change the *Device No.* to the matching device ID and enter the device IP address. Reboot Arctic Desk.

Check your firmware and software versions

We recommend updating both the software and firmware to the latest versions.

Where to find your firmware version

The device firmware version can be found on the front panel of the device. Upon boot up of the device, the current device firmware version will briefly display on the front panel.

Or you may also enter the *System menu* using the *Enter* key on the home screen of the processor and navigate to the *Information* tab to view the current device firmware.

Where to find your software version

In Arctic Desk, click on the *About* tab at the top of the software. Your software version will display.

Firmware upgrade

1. **Save any design files from the device onto your computer as all programmed data on the device will be erased during the upgrade process.** After the firmware upgrade is completed, the design file can be loaded back into your device.
2. The device must be online and connected via USB in order to perform a firmware upgrade.
3. Download the latest firmware version for your device from the Arctic website (arcticdesigncorp.com).
4. In Arctic Desk, select the device you would like to upgrade.
5. At the top of the software, select *Upgrade > Firmware*. Click *Yes* to continue.
6. Navigate to the downloaded Firmware file. Click *Open*.
7. The green status bar in the device window will display the Firmware Upgrade process. This may take several minutes. **DO NOT POWER OFF THE DEVICE. Powering off the device during a Firmware Upgrade can result in a complete corruption of the processor.**
8. Once the Firmware upgrade has completed, turn the processor Off then On again using the power switch at the back of the device.
9. Close and reopen Arctic Desk. The firmware upgrade process is complete.

How to use Arctic Desk

Device Settings and Parameters

1. Click the Arctic Desk app to start the program. Arctic Desk will ask if you would like to connect your device(s).
2. It will then display a device list to view the status of your devices.
3. Click on an online device to open the device settings and parameters.
4. A window will pop-up. Simply click the desired audio effect to make adjustments. Close the audio effect window to exit.
5. The device window also enables you to directly save/recall presets, view device network settings, view meters and FIR filters. A device status bar can also be found at the bottom right of the window.

Signal flow

Input > Mute > Gain > Delay > Filters (8-band PEQ, 31-band GEQ, Dual IIR XOvers) > Compressor > Mixer > Gain > Delay > Filters (8-band PEQ, Dual FIR XOvers, Dual IIR XOvers) > Limiter > Mute > Output.

File menu

- *Start > LogOn*: Enter the device password to unlock the device.
- *Setup > Port Connection*: Configure and view USB and network settings.
- *Setup > Device List*: Set the maximum number of devices in the Device List.
- *Setup > Copy*: Copy settings from one input/output channel to another channel.
- *Setup > Link*: Link input/output channels together. Changes applied to one linked channel will apply to all linked channels in the group.
- *Setup > Delay*: Set the temperature and unit of measure.

- *Tools > Synchronize*: Synchronize the device with Arctic Desk.
- *Security > Password*: Set a device password. We advise to always keep a back-up log of your passwords.
- *Security > Device Lock*: Lock select device menus.
- *Configuration > Save*: Save a desktop copy of the device configuration. Arctic Desk files end in ".xcfg".
- *Configuration > Open*: Open a previously saved desktop copy of the device configuration. The file name must end in ".xcfg".
- *Upgrades > Firmware*: Perform device Firmware upgrade.
- *Help > About*: Displays the Arctic Desk software version.

Save project files

Save Arctic Desk file

1. Navigate to *Configuration > Save* and select the desired location on your computer to save a copy of the device configuration. Arctic Desk files end in ".xcfg".

Save Preset

1. In the Device window, click *Preset*.
2. A window will pop-up and provide three options:
 - Transfer Presets from PC to device
 - Transfer Presets from device to PC
 - Save or recall within the device onlyPlease note device files end in ".xpd" or ".xdat".

Channel linking

Channel linking enables you to group input/output channels together. Changes applied to one linked channel will apply to all linked channels in the group.

Link from Arctic Desk

1. Navigate to *Setup > Link*.
2. A window will pop-up. *Link No.* is the link/group number. The *Enable* box must be selected to activate the link/group.
3. Name the link and select the parameters to be linked together.
4. You have the option to link multiple devices together or Link select channels only. Under the *Device* dropdown menu, select the desired device number and use the *Channel* dropdown menu to select the desired channels.
5. To cancel linking, navigate to *Setup > Link* and deselect the *Enable* box found next to the *Link No.*

Link from Front Panel

1. Hold down the first channel button and select additional channels you would like to link together.
2. Once channels are linked, the processor screen will display the parameters. Changes applied will affect all linked channels. Use the Menu <> buttons to navigate menus, Cursor <> buttons to navigate parameters.
3. To cancel linking, simply select another channel or press the Exit key.

Control using front panel

- Upon powering up the unit, the unit will start up and display the device model and firmware version.
- Once initialized, the device screen will display the device name and current program. If the program number ends with *, it means that no program is assigned, the last data before previous power down is recalled instead.

Program Inputs/Outputs

1. To program input or output channel(s), select the desired channel(s) by simply pressing down the desired channel button.
2. Navigate the Menus using the Menu <> arrows.
3. Change a parameter within the desired menu by using the cursor <> arrows.
4. Rotate the scroll wheel to adjust the value.
5. To return to the main screen, press the *Exit* key.

In the following sections, we will cover each program menu in detail.

Input/output signal

- **LEVEL:** The level (or gain) ranges from -40dB to +15dB in 0.25dB steps.
- **POL:** The polarity (or phase) can be normal (+) or inverted (-).
- **DELAY:** The maximum delay permitted is 62400 samples. Each sample is approximately 10us (1/96k). The equivalent delay time is displayed to the right in parenthesis. The delay time unit can be set to ms, ft or m from the front panel *System menu* or in *Arctic Desk Setup > Delay*.

Input/outputs EQs

- **EQ#:** Select the desired band number.
- **BYP:** Bypass the EQ band.
- **TYP:** Select the EQ-type. (ie. PEQ, Lo-shelf, Hi-shelf, All-Pass 1, All-Pass 2).
- **FRQ:** The EQ centre frequency ranges from 20Hz to 30kHz in either 1Hz steps or 1/36 octave steps. The frequency steps can be selected in the *System Menu*.
- **BW:** The EQ bandwidth ranges from 0.02 to 3.61 octaves in steps of 0.01 octave. The equivalent Q value is automatically shown besides the octave value.
- **LVL:** The level ranges from -30dB to +15dB in 0.25dB steps.

All-Pass filters,

- **DEG:** For first degree all-pass (AP-1) filter, the bandwidth will set the phase shift at the centre frequency. The phase shift is gradually changed from 180 degrees above the centre frequency to the specified value.

Input GEQ is available for inputs only and found in the next menu.

- **GEQ#:** The graphic equalizer has 31 bands of equalization from 20Hz to 20kHz. This control selects one of the 31 available bands. The frequency corresponding to each band is also shown.
- **LVL:** The level ranges from -30dB to +15dB in 0.25dB steps.
- **BYP:** Bypass the entire GEQ for this channel.

IIR Crossovers

Low frequency crossover (high pass)

- **TYPL:** The three available filter types are: Butterworth, Linkwitz-Riley or Bessel.
- **FRQL:** The filter cut-off frequency ranges from 20Hz to 30kHz in either 1Hz steps or 1/36 octave steps. The frequency steps can be selected in the *System menu*.
- **SLPL:** The filter slope ranges from 6 to 48dB/octave. If the selected filter type is Linkwitz-Riley, the available slopes are 12, 24, 36 or 48dB/octave only.

High frequency crossover (low pass)

- **TYPH:** The three available filter types are: Butterworth, Linkwitz-Riley or Bessel.
- **FRQH:** The filter cut-off frequency ranges from 20Hz to 30kHz in either 1Hz steps or 1/36 octave steps. The frequency steps can be selected in either the *System menu*.
- **SLPH:** The filter slope ranges from 6 to 48dB/octave. If the selected filter type is Linkwitz-Riley, the available slopes are 12, 24, 36 or 48dB/octave only.

Input compressor

- **THRESH:** The compressor threshold ranges from -20dBu to +20dBu in 0.5dB steps.
- **ATTACK:** The compressor attack time ranges from 0.3ms to 1ms in 0.1ms steps, then ranges from 1ms to 100ms in 1ms steps.
- **RELEASE:** The compressor release time can be set at 2X, 4X, 8X, 16X, or 32X the attack time.
- **RATIO:** The compressor ratio is the slope in which the signal is compressed. It ranges from 1:1 to 1:40.

Input/output channel name

- **NAME:** A six character name can be assigned to each channel.

Output limiter

- **THRESH:** The limiter threshold ranges from -20dBu to +20dBu in 0.5dB steps.
- **ATTACK:** The limiter attack time ranges from 0.3ms to 1ms in 0.1ms steps, then ranges from 1ms to 100ms in 1ms steps.
- **RELEASE:** The limiter release time can be set at 2X, 4X, 8X, 16X, or 32X the attack time.

Output source

- **IN#:** This sets the input channel source for the current output channel. It can be used to mix the input source (in dB) or disable it (Off). If more than one input sources are enabled, they will be added together as the source for the current output channel.

Output FIR crossover

Low frequency crossover (high pass)

- **TYPL:** Enable FIR filter.
- **FRQL:** The filter cut-off frequency for the low frequency crossover point (high pass) ranges from 20Hz to 30kHz in either 1Hz steps or 1/36 Octave steps. The steps and FIR Taps can be set in the *System menu*.

High frequency crossover (low pass)

- **TYPH:** Enable FIR filter.
- **FRQH:** The filter cut-off frequency for the high frequency crossover point (low pass) ranges from 20Hz to 30kHz in either 1Hz steps or 1/36 Octave steps. The steps and FIR Taps can be set in the *System menu*.

System menu

The system menu allows you to configure the system settings.

1. Press the *Exit* key to return to the main screen.
2. Press the *Enter* key to enter into the *System menu*.
3. Use the Menu <> arrows to navigate the device settings. Change a parameter within the desired menu using the Cursor <> arrows.
4. Rotate the scroll wheel to adjust the value.
5. To confirm a change, press the *Enter* key twice.
6. To exit the menu, press the *Exit* key.

Preset recall

The device has a built-in non-volatile memory that can store up to 30 different presets.

- **PRESET:** This selects which program to recall from the non-volatile memory.
- **NAME:** The program name is displayed.

Preset store

A program can be stored using this menu. The old program with the same program number will be replaced. Once the program is stored in the flash memory, it can be recalled at a later time, even after power down.

- **PRESET:** Select which location in the non-volatile memory to save the program to.
- **NAME:** A descriptive name of up to twelve characters can be assigned to each program.

FIR Taps

FIR taps can be set in Arctic Desk or on the front panel of the device.

Set FIR taps in Arctic Desk

1. Open the device in Arctic Desk.
2. Click *FIR Filters* at the bottom left corner of the device window.

Set FIR taps on the processor

1. *Exit* to return to the main processor screen.
2. Press *Enter* to view the *System menu*.
3. Use the Menu <> cursor arrows to navigate to the *FIR Taps* menu.

You can set the number of FIR taps for each pair of output channels. (ie. outputs 1&2, outputs 3&4, outputs 5&6, outputs 7&8). The tap values range from 50 to 1200 taps in 50 taps increments. The sum of all taps cannot exceed 1500.

Generally speaking, higher frequencies require a smaller number of taps, while lower frequencies require a higher number of Taps.

Below is a reference chart for the Number of FIR Taps and the Minimum Frequency.

Number of Taps	Minimum Frequency (Hz)
50	4800
100	2400
150	1600
200	1300
250	1000
300	850
350	700
400	625
450	550
500	500
550	450
600	425
650	400
700	390
750	385
800	340
850	310
900	285
950	275
1000	265
1050	250
1100	230
1150	220
1200	210

Copy channels

When the source and targets are both inputs and outputs, all audio parameters will be copied. When the Source or the Target is an input while the other is an output, only the Level, Polarity, Delay, EQ, Crossover, and Channel name are copied.

- **SOURCE:** Channel to be copied from.
- **TARGET:** Channel to be copied to.

General

- **FREQ MODE:** Change the frequency control mode for EQ and crossover filters. It can be 1/36 Octave steps or All frequencies in 1Hz resolution.
- **DELAY UNIT:** Set the time unit for input and output delay to ms, ft, or m.

Ethernet settings

- **IP ADR:** A unique IP address should be assigned to each unit in the network.
- **GATEWAY:** The gateway address of the network.
- **SUBNET:** This sets the subnet mask used by your network.

Need assistance?

Please jump to our *Ethernet Connection* section to learn to configure your network settings.

Communication settings

NOTE: The user must power cycle the unit for this setting to take effect.

- **DEVICE ID:** Assign a device ID from 1 to 16 to the unit.
- **BAUD RATE:** Sets the baud rate of the serial communication. Arctic Desk uses a Baud rate of 115200. This should be left unchanged for most users.
- **NETWORK ID:** This assigns a network ID from 0 to 60000 to the unit. The ID is used for future network expansion only. Please leave this at 0.

Security lock

Passwords are four characters in length. The factory default of a new unit does not require a password. The security settings can be controlled and stored in the device with Arctic Desk only. When the correct password is entered in the device, all the locks are disabled. After re-entering the password or power cycling the device, the locks are automatically enabled again.

Factory settings

CURRENT: Reset all the current parameters back to factory default settings only, while stored presets and system settings stay untouched.

ISO

The internal system optimizer reduces ground floor noise if no signal is present. If unwanted noise gate effects are audible at low sound levels, it can be switched to bypass mode.

THRESHOLD: The threshold value can be set from 80 to 120.

BYPASS: Bypass the ISO.

Info

View the device name, firmware version and security code. When no password is set, the factory default code is 11110000. When another combination of characters is displayed, a password is set in the device and certain functions are disabled for the user to modify.

