

NEBULATM

Diffusion Hazer

User Manual

High End



SYSTEMS®

High End Systems, Inc.
2217 West Braker Lane
Austin, Texas 78758 U.S.A.

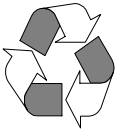


NEBULATM

Diffusion Hazer

User Manual

High End Systems, Inc.
2217 West Braker Lane
Austin, TX 78758 U.S.A.



Nebula User Manual Version 1.0 May 1996

P/N 60600071

© Copyright 1996 High End Systems, Inc. All Rights Reserved. Printed in the U.S.A.

High End Systems International Sales

U.S. and Canada High End Systems, Inc.
2217 West Braker Lane
Austin, TX 78758
USA
voice: (512) 836-2242
toll-free: (800) 890-8989
FAX: (512) 837-5290

World Wide Web <http://www.highend.com>

Europe High End Systems GmbH
Lohstrasse 22
D-85445 Schwaig
Germany
voice: +49 8122 9903-0
FAX: +49 8122 9903-33

Singapore High End Systems Singapore Pte. Ltd.
1 Tannery Road 06-05
Cencon 1
Singapore 1334
voice: +65 742 8266
FAX: +65 743 9322

Trademarks

Trademarks used in this text: Lightwave Research, the Lightwave Research logo, the High End Systems globe logo, are registered trademarks; and Nebula and High End Systems are trademarks of High End Systems, Inc.

Belden is a registered trademark of Belden, Inc. Other trademarks and trade names may be used in this document to refer to either the entities claiming the marks and names or their products. High End Systems disclaims any proprietary interest in trademarks and trade names owned by others.

Declaration of Conformity
according to ISO/IEC Guide 22 and EN45104

Manufacturer's name: Lightwave Research
Manufacturer's address: Lightwave Research
High End Systems, Inc.
2217 West Braker Lane
Austin, Texas 78758
U.S.A.

declares that the product

Product Name: Nebula Diffusion Hazer
Product Number: NBL01
Product Options: All

conforms to the following EEC directives:

73/23/EEC, as amended by 93/68/EEC

89/336/EEC, as amended by 92/31/EEC and 93/68/EEC

Equipment referred to in this declaration of conformity first
manufactured in 1996 in compliance with the following
standards:

Safety: EN 60335-1

EMC: EN 55022 Class A
IEC 801-2: 1991 Level 2 (4/8kV)
IEC 801-3: Draft 5 Level 2 (3 V/m)
IEC 801-4: 1988 Level 2 (1kV/.5kV)



U.S.A., Thursday, October 09, 1997

Lanny Derryberry, Compliance Engineer

IMPORTANT SAFETY INFORMATION

INSTRUCTIONS PERTAINING TO CONTINUED PROTECTION AGAINST FIRE, ELECTRIC SHOCK, AND INJURY TO PERSONS ARE FOUND IN APPENDIX A.

READ ALL CAUTIONS AND WARNINGS PRIOR TO ASSEMBLY, MOUNTING, AND OPERATING THIS EQUIPMENT.

IMPORTANT: INFORMATIONS DE SÉCURITÉ

INSTRUCTIONS RELATIVES À UNE PROTECTION CONTINUE CONTRE L' INCENDIE, LE CHOC ÉLECTRIQUE, ET CONTRE DES BLESSURES POSSIBLES SUR DES INDIVIDUS SE TROUVENT DANS L'APPENDICE A.

PRIÈRE DE LIRE TOUTES LES PRÉCAUTIONS ET LES AVERTISSEMENTS AVANT D'ASSEMBLER, DE MONTER, ET DE FAIRE FONCTIONNER CET ÉQUIPEMENT.

WICHTIGE SICHERHEITSHINWEISE

DIE NACHSTEHENDEN HINWEISE BETREFFEN DEN SCHUTZ GEGEN BRAND, ELEKTRISCHEN SCHLAG, SOWIE VERLETZUNGEN. SIE BEFINDEN SICH IN APPENDIX A.

LESEN SIE ALLE WARNUNGEN SORGFÄLTIG, BEVOR SIE DAS GERÄT ZUSAMMENBAUEN, INSTALLIEREN UND BENUTZEN!

INFORMACIÓN IMPORTANTE DE SEGURIDAD

SE ENCUENTRAN EN EL APÉNDICE B LAS INSTRUCCIONES CONCERNIENTES A LA PROTECCIÓN CONTINUA CONTRA INCENDIO, CHOQUE ELÉCTRICO, Y LESIONES A PERSONAS.

POR FAVOR LEA TODAS LAS PRECAUCIONES Y LAS ADVERTENCIAS ANTES DE ENSAMBLAR, MONTAR Y OPERAR ESTE EQUIPO.

INFORMAZIONI IMPORTANTI DI SICUREZZA

ISTRUZIONI PERTINENTI LA PROTEZIONE CONTRO IL FUOCO, LE SCOSSE ELETTRICHE, I DANNI ALLE PERSONE SI TROVANO NEL APPENDICE A.

LEGGERE TUTTI GLI AVVERMENTI PRIMA DI MONTARE E USARE QUESTO APPARECCHIO.

FCC Information

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Patents

Nebula may use one or more of the following patents: US 4,962,687; US 5,078,039; UK 2,043,769; US 5,331,822; US 5,402,326; UK 2292896; US D365165; US 5,430,629; US D360,404; US 5,455,748; 0475082; US 5,506,762; M9604224.9; US 5,515,254; US D370080; UK 2.291,814; US 5,545.951; UK 2055842; UK 2,292,530; UK 2294909; UK 2292896; 1052/96; 862-1996; and US 5,580,164.

Additional patents pending.

Warranty and Conditions

Unpacking and Saving the Shipping Materials

Do not discard the shipping carton and packing materials. The carton and packing materials are specifically designed to protect the product during transport.

High End Systems assumes no responsibility for products damaged during transport. Therefore, you should return a product for repair in its original shipping carton and packing materials.

Note: Before sending anything to the factory, be sure to call your HES Dealer/Distributor for a Return Authorization Number (RA#). Any goods shipped without

an RA# will be refused at the factory.

Inspecting the Contents

Carefully remove the contents of each shipping carton and inspect for signs of freight damage. If any such damage is found, you need to notify both the shipping agent and the sales agent immediately.

Any damage incurred in shipping is the responsibility of the carrier. In the case of hidden damage, a claim should be made as soon as discovered and all packing material retained for inspection.

Note: Freight Damage Claims are invalid for fixtures or controllers shipped in non-factory shipping cartons and packing materials.

Limited Warranty

Unless otherwise stated, your product is covered by a two year parts and labor limited warranty. It is the owner's responsibility to furnish receipts or invoices for verification of purchase, date, and dealer or distributor. If purchase date cannot be provided, date of manufacture will be used to determine warranty period.

Returning an Item for Repair Covered by Warranty

It is necessary to obtain a Return Authorization Number (RA#) from your dealer/point of purchase **BEFORE** any units are sent in for repair. The manufacturer will make the final determination as to whether or not the unit is covered by warranty.

Please note: Freight Damage Claims are invalid for fixtures shipped in non-factory boxes and packing materials.

Freight

All shipping will be paid by the purchaser. Items under warranty shall have return shipping paid by the manufacturer only in the Continental United States.

Under no circumstances will freight collect shipments be accepted. Prepaid shipping does not include rush expediting such as airfreight. Airfreight can be sent customer collect in the Continental United States.

REPAIR OR REPLACEMENT AS PROVIDED FOR UNDER THIS WARRANTY IS THE EXCLUSIVE REMEDY OF THE CONSUMER. HIGH END SYSTEMS, INC. MAKES NO WARRANTIES, EXPRESSED OR IMPLIED, WITH RESPECT TO ANY PRODUCT, AND HIGH END SPECIFICALLY DISCLAIMS ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. HIGH END SHALL NOT BE LIABLE FOR ANY INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGE, INCLUDING LOST PROFITS, SUSTAINED OR INCURRED IN CONNECTION WITH ANY PRODUCT OR CAUSED BY PRODUCT DEFECTS OR THE PARTIAL OR TOTAL FAILURE OF ANY PRODUCT REGARDLESS OF THE FORM OF ACTION, WHETHER IN CONTRACT, TORT, (INCLUDING NEGLIGENCE), STRICT LIABILITY, OR OTHERWISE, AND WHETHER OR NOT SUCH DAMAGE WAS FORESEEN OR UNFORESEEN.

Warranty is void if the product is opened, misused, damaged, or modified in any way. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

Table Of Contents

IMPORTANT SAFETY INFORMATION	4
IMPORTANT: INFORMATIONS DE SÉCURITÉ	4
WICHTIGE SICHERHEITSHINWEISE	4
INFORMACIÓN IMPORTANTE DE SEGURIDAD	4
INFORMAZIONI IMPORTANTI DI SICUREZZA	4

Chapter 1 Introduction

Introduction	13
Specifications	14
Power Requirements	14
Fuses	14
Electronics	14
Weight	14
Assembled Unit Dimensions (including handles)	14
Fluid	15
Cables and Connectors	15
Safety Standards	15
EMC Standards	15
The Nebula™ Family of Hazers	16
Getting Help	16

Chapter 2 Setting Up Your Nebula™

Unpacking Nebula™	17
Installation Planning and Precautions	17
Remote Control	18
Optional Accessories	18
Obtaining and Installing the Power Cord Cap ..	19
Important Power Cord Cap Information - U.K. Only	19
Vigtig Sikkerhedsinformation - DANMARK ..	20
Filling and Positioning Nebula™	21
Nebula™ Design Suggestions	24

Nebula: High Output but Subtle	24
Where to Place Nebula on the Stage	25

Chapter 3 Operating Your Nebula™

Overview	26
Locating Remote Control Components	27
Description of Components	27
Powering On Nebula™	28
Operating Nebula™ Under DMX 512 Control ...	30
Setting Nebula's DMX Address	30
XLR Cabling Specification	31
Constructing XLR Cabling	31
Connecting Nebulas to the Controller	33
Terminators	35
Operating Nebula™ Under Analog Control	36
Operating Nebula™ Under Timer Control	38
Operating Nebula™ Under Manual Control	40

Chapter 4 Maintenance and Troubleshooting

Checking the Power Supply Fuse	41
Routine Cleaning	43
Draining the Fluid Tank	44
Troubleshooting	46

Appendix A IMPORTANT SAFETY INFORMATION

Appendice A IMPORTANT: INFORMATIONS DE SÉCURITÉ

Anhang A WICHTIGE SICHERHEITSHINWEISE ..

Apéndice A INFORMACIÓN IMPORTANTE DE SEGURIDAD

Appendice A INFORMACIÓN IMPORTANTE DE SEGURIDAD

INDEX

Table of Figures

Figure 1. Three views of the Nebula hazer:
front, rear and side. 16

Figure 2. The correct orientation for Nebula is
flat on its bottom, not at an angle or
on its front or back.21

Figure 3. To fill Nebula with fluid, first loosen the
two T-handles, then pull the fluid tank
cover straight toward the front of the unit. 22

Figure 4. Pulling the Nebula fluid tank cover to
the front of the unit exposes the
fluid tank. Look through the fluid
tank window to determine how full
the tank currently is.22

Figure 5. Allow ample room around Nebula for
air circulation.23

Figure 6. The Nebula remote control has a status
display, LEDs that display configuration
and status information, as well
as configuration and manual
operation buttons.27

Figure 7. To open the tank door for operating
Nebula, first loosen the two T-handles,
then pull the fluid tank cover straight
toward the front of the unit.29

Figure 8. Removing the four Phillips screws that
secure the Nebula remote to Nebula.29

Figure 9. Properly-constructed data cable.32

Figure 10. Location of the DMX in and out
ports on the Nebula remote control.33

Figure 11. Make sure you connect the Data Out connector from the previous Nebula to the Data In connector of the next Nebula.34

Figure 12. Assembling an XLR terminator. Place the terminator in the Data Out port of the last device in the link (whether that device is a Nebula or something else). ..35

Figure 13. Removing the four Phillips screws securing the remote control to Nebula. 36

Figure 14. First, unscrew the bottom locking ring connector, then pull the cable straight up to reveal the analog/remote connector.37

Figure 15. Pinouts of male and female analog connectors.37

Figure 16. Location of the Nebula fuse holder.41

Figure 17. Make sure the air vents are kept free of dust and debris.43

Figure 18. Close the tank lid before draining Nebula fluid.44

Figure 19. Lift the drain cap straight out of the top of Nebula.45

Table of Tables

Table 1. Nebula Optional Accessories 18

Chapter 1

Introduction

Introduction

The Nebula™ Diffusion Hazer uses a new cold mechanical atomization technique to produce a fine, persistent haze that is both subtle and effective. The safe haze-producing fluid contains no oil and evaporates naturally, leaving behind a minimal amount of residual buildup.

Nebula is a high-performance haze generator that can be used in four operational modes: single-channel DMX 512, 0-10V analog, timed on and off cycles, or manual push-button on/off.



For your safety, it is important that you read this user guide thoroughly before you operate the Nebula.

In this guide you will find the following symbols:



Note/Caution: This symbol appears adjacent to Caution or Note messages. A Note is an advisory provided for your information. A Caution is an advisory warning; failure to heed a Caution could result in minor personal injury and/or damage to equipment.



Electrical Shock: This symbol appears adjacent to electrical shock warnings. Not heeding these messages could result in electrical shock and serious personal injury.



Explosion: This symbol appears adjacent to Explosion warning messages. These messages warn you about possible fire or explosive dangers.

Specifications

Manufacturer's name	Lightwave Research
Manufacturer's address	Lightwave Research High End Systems, Inc. 2217 West Braker Lane Austin, Texas 78758 U.S.A.
Product Name	Nebula™ Diffusion Hazer
Product Number	NBL01

Power Requirements

- 120 VAC, 60 Hz, 2 A
- 230 VAC, 50 Hz, 1 A
- 250W at 120VAC and 230VAC

Fuses

- 120VAC - 250V, 7A, Slow Blow Only
- 230VAC - 250V, 4A, Slow Blow Only

Electronics

- Over-temperature protection
- Parallel-inverted Silicon Controlled Rectifiers (SCRs), also called *thyristors*

Weight

- 15 Kg (33 lbs) with empty tank

Assembled Unit Dimensions (including handles)

- 30 cm (12 inch) Height
- 53 cm (21 inch) Width
- 51 cm (20 inch) Length

Fluid

- Use only Nebula™ Haze Fluid, available from your High End Systems dealer/distributor (part number 05040013 for four, 2-liter bottles). *Use of any other fluid will void the warranty.*

Cables and Connectors

- **DMX data cables:** Belden® 9841 or equivalent (meets specifications for EIA RS-485 applications) with characteristics listed below:
 - 2-conductor twisted pair plus a shield
 - maximum capacitance between conductors - 30 pF/ft.
 - maximum capacitance between conductor and shield - 55 pF/ft.
 - maximum resistance of 20 Ω /1000 ft.
 - nominal impedance 100–140 Ω
 - 22–24 AWG with insulation having a dielectric rating of 300 volts or higher
- **DMX data connectors:** Standard 3-pin male and female XLR connectors
- **DMX data terminators:** Standard 3-pin male XLR connector with 120 ohm terminator (see the section titled “Terminators” on page 36).

Safety Standards

- EN 60335-1

EMC Standards

- EN 50081-1 : 1992
- EN 50082-1 : 1992



The Nebula™ Family of Hazers

At the time of this writing, there are two versions of the Nebula hazer: one for 120VAC operation and one for 230VAC operation. Both versions are identical in form and function.

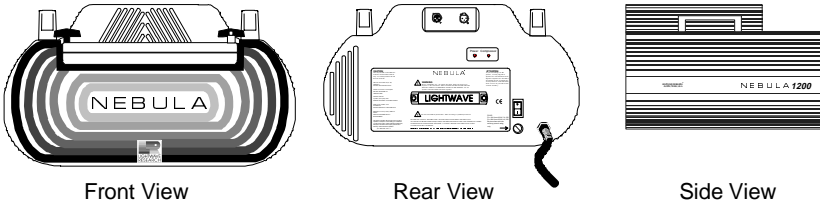


Figure 1. Three views of the Nebula hazer: front, rear and side.

Getting Help

High End Systems Service

**U.S. and
Canada**

Service address:
2227 West Braker Lane
Austin, TX 78758 U.S.A.

From 8 a.m. to 6 p.m. (U.S. Central time)
Monday through Friday: (800) 890-8989

24-hour FAX: (512) 834-9195

24-hour voice mail: (512) 837-3063 or
(800) 890-8989

**24-hour
Customer
Service
World Wide
Web site**

<http://info.highend.com/service/service.html>

**High End
Systems
World Wide
Web site**

<http://www.highend.com>

Europe

Voice: +49 8122 9903-0
FAX: +49 8122 9903-33

Singapore

Voice: +65 742 8266
FAX: +65 743 9322

Chapter 2

Setting Up Your Nebula™

Unpacking Nebula™

The shipping carton contains Nebula, its piggybacked remote control, and this manual. You will also receive one complimentary two liter container of Nebula Haze Fluid in separate packaging.

Note: If you did not receive all of the items listed above, contact your High End Systems dealer or distributor immediately.

Installation Planning and Precautions



Cautions

(1) This product is intended for use with Nebula™ Haze Fluid only. Manufacturer disclaims any and all liability for the misuse of this product and/or Nebula™ Haze Fluid fog generating fluid.

(2) Use responsible concentrations to create light mist, not dense fog.

(3) The area in which this product is to be used should be well ventilated.

(4) Do not install this unit directly over an audience or performers.

(5) Do not point discharge directly into an audience.



(6) Do not operate near flammable materials or gases.

(7) No user serviceable parts inside the unit. Refer service to qualified personnel.



(8) Do not expose to rain or moisture.

(9) If there are smoke detectors in the building in which Nebula will be used, see “Filling and Positioning Nebula™” on page 22.

Remote Control



All Nebula controls and indicators are located on the piggyback remote control which is attached to the rear of Nebula by four #8 Phillips-head screws.



The remote control attaches to the rear of Nebula by a 6-pin connector. Pinouts of male and female analog connectors are shown in Figure 15 on page 38.

Optional Accessories

You can order the following optional accessories for Nebula from your High End Systems dealer/distributor:

Table 1. Nebula Optional Accessories

Name	Part Number
Nebula Haze Fluid, 4 two-liter containers	05040013
50 ft (15.2 m) extension cable	80470001
100 ft (30.4 m) extension cable	80470002
Replacement remote control	15040007

Obtaining and Installing the Power Cord Cap

If this equipment was received without a power cord cap, you must obtain and install a power cord cap before you can connect Nebula to a power outlet. The type of power cord cap you must obtain depends on the location in which Nebula will be used; different locations (even within the same country) might have different power cord cap requirements.



Note Because of the wide variety of power cord caps used worldwide, High End Systems cannot make specific recommendations for the particular power cord cap you should use. Contact a local authority if you are unsure which type of power cord cap you need.

Important Power Cord Cap Information - U.K. Only

IMPORTANT The cores in the mains lead are colored in accordance with the following code:

- **green and yellow:** earth
- **blue:** neutral
- **brown:** live

Since the colors of the cores in the mains lead of this equipment may not correspond with the colored markings identifying the terminals in your plug, proceed as follows:

- The core which is colored green and yellow must be connected to the terminal in the plug which is marked with the letter “E” or by the earth symbol \oplus , or colored green or green and yellow.
- The core which is colored blue must be connected to the terminal which is marked with the letter “N” or colored black.

- The core which is colored brown must be connected to the terminal which is marked with the letter “L” or colored red.



THIS EQUIPMENT MUST BE EARTHED.

Vigtig Sikkerhedsinformation - DANMARK

Advarsel: Beskyttelse mod elektrisk chock.

Vigtigt!

Lederen med gul/groen isolation maa kun tilsluttes en klemme maerket



eller



Filling and Positioning Nebula™

Before you plug in Nebula, be sure to inspect it for any damage that might have occurred in shipping. If there is any damage, *do not plug in Nebula*; refer to “Warranty and Conditions” on page 5.

Step 1: Turn Nebula OFF

Turn Nebula’s power switch OFF if you have not already done so.

Step 2: Stabilize Nebula

Place Nebula on a stable, flat surface. Nebula *must be* oriented flat on its bottom, as shown in Figure 2.

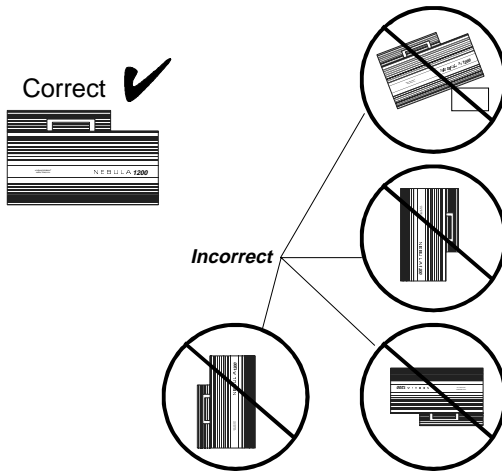


Figure 2. The correct orientation for Nebula is flat on its bottom, not at an angle or on its front or back.

Step 2: Fill the tank

Fill the tank with Nebula fluid as shown in Figure 3 and Figure 4. (When Nebula runs out of fluid, it will stop producing haze, but no damage to the unit will result.)

For information on draining the fluid tank, see the section titled “Draining the Fluid Tank” on page 45.



Caution

This product is intended for use with Nebula™ Haze Fluid only. Manufacturer disclaims any and all liability for the misuse of this product and/or Nebula™ Haze Fluid fog generating fluid.

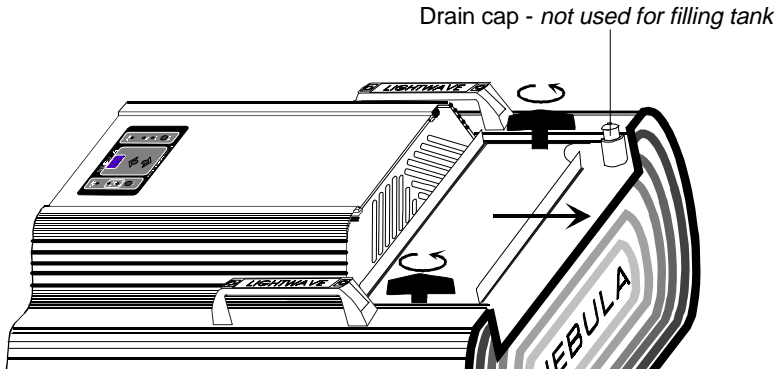


Figure 3. To fill Nebula with fluid, first loosen the two T-handles, then pull the fluid tank cover straight toward the front of the unit.

You can look through the fluid tank window to tell when Nebula is full.

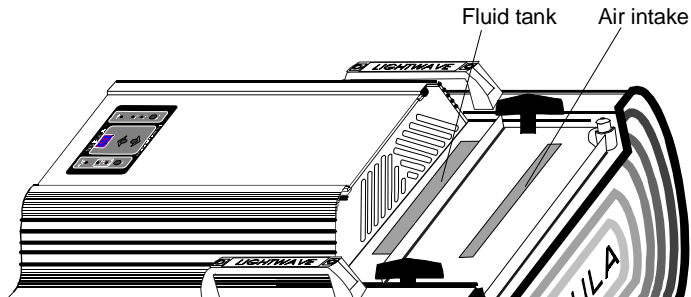


Figure 4. Pulling the Nebula fluid tank cover to the front of the unit exposes the fluid tank. Look through the fluid tank window to determine how full the tank currently is.



Note

If you overfill Nebula, you can clean the spillage with paper towels or cloths, using warm soapy water if necessary. Nebula fluid will not harm your skin or stain clothing.

Step 3: Position Nebula

Use the following guidelines whenever positioning Nebula (see Figure 5).

Lay on bottom

- Nebula must be flat on its bottom, as shown in Figure 5. *Do not orient Nebula at an angle, on its front, or upside-down.* See Figure 2 on page 22.

Allow room around Nebula

- Allow at least 3 ft (1 m) clearance above Nebula to prevent condensation.
- Allow at least 2 in (5 cm) clearance at the rear of Nebula to allow for venting.



Smoke detectors

- Because Nebula generates haze, it can trigger smoke detectors. **If the building in which Nebula will be used has smoke detectors. High End Systems strongly recommends that you test Nebula prior to using it in a show.**

General

- The area in which this product is to be used should be well ventilated.
- Do not install this unit directly over an audience or performers.
- Do not expose to rain or moisture.

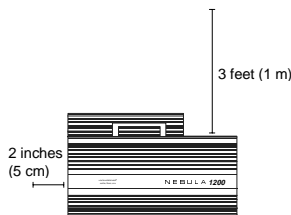


Figure 5. Allow ample room around Nebula for air circulation.

Nebula™ Design Suggestions

This section is intended to give you some general ideas about how best to integrate Nebula into your show. *These are general guidelines only; for more specific information, contact High End Systems in one of the ways shown in the section titled “Getting Help” on page 17.*

Nebula: High Output but Subtle

Nebula is a fine-mist hazer, so its effects will not be readily apparent in diffuse ambient lighting. Shining a defined beam—such as a laser or a profile spot—through the haze, however, produces dazzling results.

Since Nebula’s haze production isn’t readily apparent, one of your first questions might be, “How long do I need to let Nebula run before my light show begins to achieve the best result, without wasting fluid?”

Follow the procedure below:

- Approximate the volume of your stage. For example, a stage that measures 50 ft x 30 ft x 20 ft would have a volume of:

$$50 \text{ ft} * 30 \text{ ft} * 20 \text{ ft} = 30,000 \text{ cubic ft}$$

- Divide the stage volume by Nebula’s rated output, 6,000 cubic ft/minute. Continuing the example above,

$$30,000 \text{ cubic feet} / 6,000 \text{ cubic feet per minute} = 5 \text{ minutes}$$

Note In order to compensate for haze dispersion due to air currents, it’s always best to run Nebula for a longer time than your approximation indicates.

- **Solution:** Since Nebula haze has a long “hang time” (the haze does not dissipate rapidly), you could run Nebula for 5 to 10 minutes continuously to achieve the best effect, then

run Nebula intermittently afterward to maintain the same level of haze.

Where to Place Nebula on the Stage


The following points summarize considerations you will want to make when positioning Nebula on your stage. These points will be described in more detail in the paragraphs below.

- Position Nebula in any safe place on the stage (you do not necessarily need to position it above or below your lighting fixtures). Make sure you position Nebula flat on its bottom as shown in Figure 2 on page 22, and make sure you observe cautions and warnings in this manual.
- Make sure Nebula is not close enough to performers or microphones to be distracting.

Nebula's unique fine, oil-free haze is approximately the same density as air; therefore, Nebula haze will neither rise to the ceiling nor sink to the floor. The haze simply drifts with prevailing air currents and is distributed evenly in the space around it.

For that reason, you can position Nebula anywhere on the stage. You are restricted by only two things: (1) safety precautions listed in this manual, and (2) your imagination.

The sound generated by Nebula's compressor is sufficient to distract performers and to be picked up by microphones.

 **High End Systems strongly recommends that you test Nebula before deploying it in your show. Also, observe the cautions and warnings listed in this manual.**

Chapter 3

Operating Your Nebula™

Overview

Nebula can be controlled manually, by DMX 512, analog, or timer as described below:

- **DMX 512 control (default):** Each Nebula uses one DMX channel; theoretically, up to 512 Nebulas can be connected per link to a controller.
- **Analog control:** Nebula can be controlled remotely using a 0-10V analog signal.
- **Timer control:** Set the length of run (on) and delay (off) times, ranging from 1 minute to 9 hours, 45 minutes.
- **Manual control:** Manually switch Nebula on and off from a remote location.

Nebula's piggybacked remote control contains DMX data ports as well as timer and manual controls. Disconnecting the remote control cable from Nebula exposes a 6-pin analog control connector.



Note Because Nebula is a fine-mist hazer, there is no need to adjust the intensity or volume of haze using either analog, DMX, timer or manual control. Instead, you use each method to switch Nebula on and off.

Locating Remote Control Components

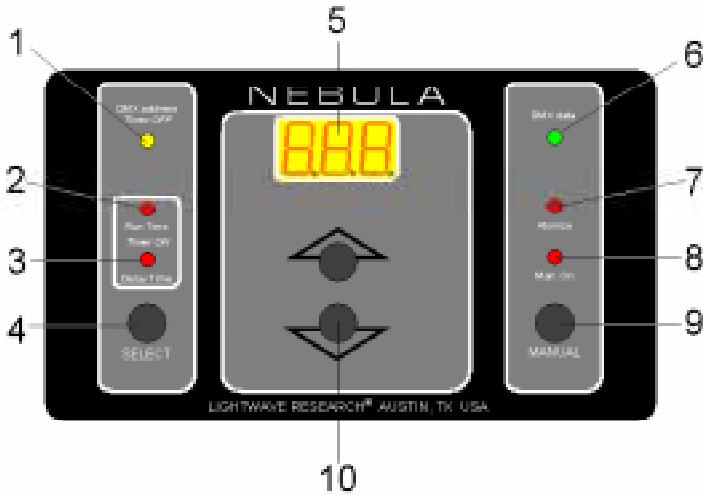


Figure 6. The Nebula remote control has a status display, LEDs that display configuration and status information, as well as configuration and manual operation buttons.

Description of Components

1. **DMX address LED**—When this yellow LED is on, Nebula is being used under DMX 512 control. You can press the Up and Down arrow buttons to change the DMX address, which appears in the status display.
2. **Run Time LED**—When this red LED is on, Nebula is being used under timer control. The status display shows the length of time Nebula has been programmed to run; you can change the time by pressing the Up and Down arrow buttons.
3. **Delay Time LED**—When this red LED is on, Nebula is being used under timer control. The status display shows the length of time Nebula has been programmed to delay

(pause) between run cycles; you can change the time by pressing the Up and Down arrow buttons.

4. **Select button**—Pressing this button cycles between DMX address, run time and delay time.
5. **Status display**—Displays the value determined by your pressing the Select button: DMX address, run time, or delay time. Times are displayed in H.MM format; for example, a value of 1.15 would mean 1 hour, 15 minutes.
6. **DMX data LED**—Green LED that blinks when DMX data is received from a controller.
7. **Atomize LED**—Red LED that indicates Nebula is producing haze.
8. **Man(ual) on LED**—This red LED indicates Nebula is being used under manual control.
9. **Manual button**—Turns Nebula on and off under manual control.
10. **Up and Down buttons**—Allow you to change the value shown in the status display.

Powering On Nebula™

Step 1: Plug in Nebula

Plug Nebula into a power socket with the appropriate voltage.



Caution

Plug Nebula into a compatibly-rated power outlet only. Plugging Nebula into another type of outlet will cause permanent damage. (For example, plug a Nebula rated at 120VAC into a compatibly-rated outlet only.)

Step 2: Open the tank door

Slide the tank door open as shown in Figure 7.

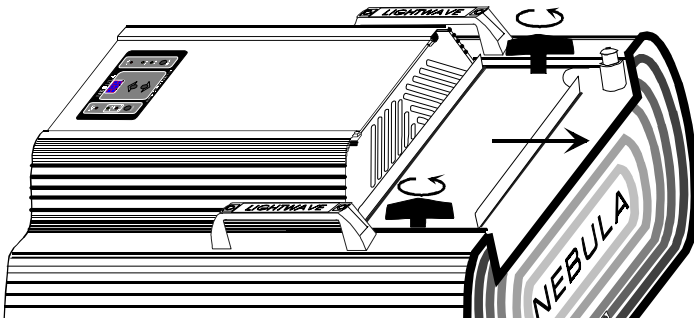


Figure 7. To open the tank door for operating Nebula, first loosen the two T-handles, then pull the fluid tank cover straight toward the front of the unit.

Step 3: (Optional) Remove the remote control

Remove the four #8 Phillips-head screws securing the remote control to Nebula as shown in Figure 8.

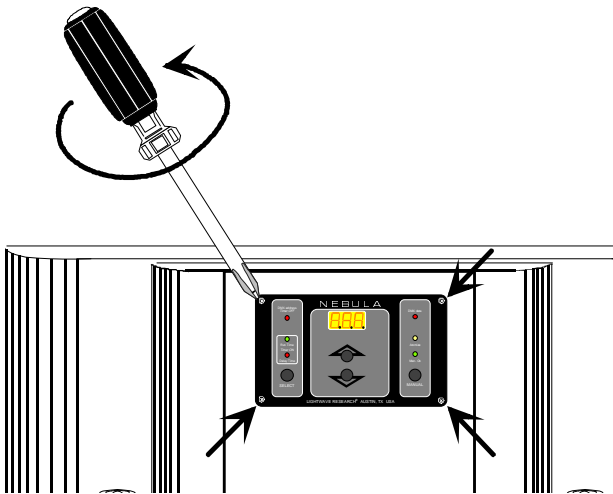


Figure 8. Removing the four Phillips screws that secure the Nebula remote to Nebula.

The remote ships with a 25 ft (7.6 m) cable. Optional 50 ft (15.2 m) and 100 ft (30.4 m) extension cables are available from your High End Systems dealer/distributor (part numbers

80470001 and 80470002, respectively).

Step 4: Power on Nebula

After making sure Nebula is plugged into a properly-rated outlet, turn the power switch ON and see one of the sections listed in Step 5.

Step 5: Where to go from here

- “Operating Nebula™ Under DMX 512 Control” on page 31
- “Operating Nebula™ Under Analog Control” on page 37
- “Operating Nebula™ Under Timer Control” on page 39
- “Operating Nebula™ Under Manual Control” on page 41

Operating Nebula™ Under DMX 512 Control

Nebula defaults to DMX 512 control whenever you power it ON. The yellow DMX address LED will be ON, and the status display shows the previously-set DMX address.


Setting Nebula’s DMX Address



Each Nebula uses one DMX address. You can assign multiple Nebulas the same address if you wish them to respond to DMX control in exactly the same way.

For example, suppose you have 4 Nebulas on a DMX link. You want 2 of them to turn on and off together, but you want the other 2 to turn on and off at different times. You could assign the same DMX address to the first 2 Nebulas and individual addresses to the other 2, for a total of 2 DMX addresses.

To set Nebula's DMX address, press the **Up** and **Down** arrow buttons located under the status display. The DMX address is stored in Nebula after you power it off.

 **Note** Multiple Nebulas can be assigned the same address, but a Nebula should not be assigned the same address as a different device, such as a lighting fixture. Doing so could cause confusion but will not prevent Nebula from operating.

XLR Cabling Specification

There are two main types of cabling you can use: data-grade cable and microphone cable. Although pin-compatible microphone cable is suitable for small-scale designs, data-grade cable is recommended, especially for longer cable runs. Data-grade cable is designed to carry a higher-quality signal with less susceptibility to electromagnetic interference.

The cable you use should have the characteristics listed below:

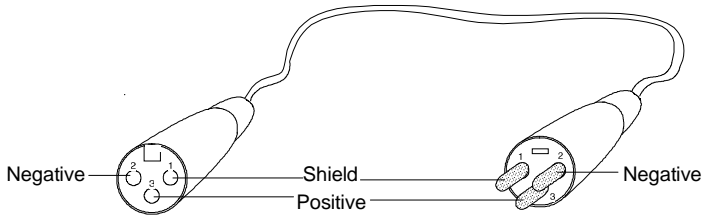
- 2-conductor twisted pair plus a shield
- maximum capacitance between conductors - 30 pF/ft.
- maximum capacitance between conductor and shield - 55 pF/ft.
- maximum resistance of 20 Ω /1000 ft.
- nominal impedance 100–140 Ω
- 22–24 AWG with insulation having a dielectric rating of 300 volts or higher

Belden 9841 data-grade cabling meets specifications for EIA RS-485 applications and is highly recommended for use with Nebula.

Constructing XLR Cabling

Follow the instructions in this section if you need to construct cabling. You should construct cables using shielded, two-conductor cable with a male 3-pin XLR connector at one end and a female 3-pin XLR connector on the other end. Pinouts for both male and female XLR

connectors are shown in Figure 9.



Female XLR connector

Male XLR connector

Figure 9. Properly-constructed data cable.



Caution

Do not use the ground lug on the XLR connectors. Do not connect the shield to the ground or allow contact to the ground. Grounding the shield could cause a ground loop and/or erratic behavior.

Connecting Nebulas to the Controller

Nebula's remote has DMX in and out ports located on it, as shown in Figure 10.

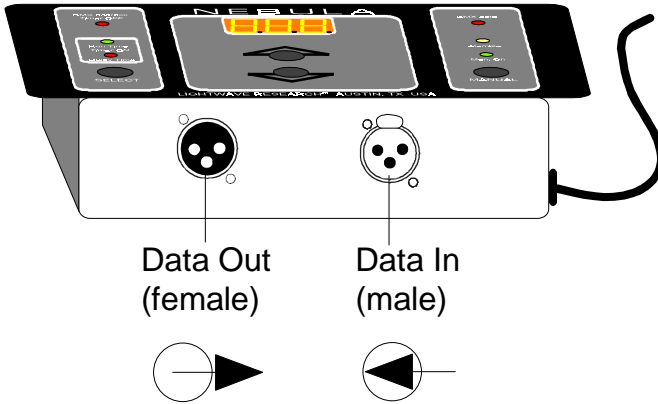


Figure 10. Location of the DMX in and out ports on the Nebula remote control.

Starting with the controller, link devices using the procedure below. Refer also to Figure 11.

1. Assign each Nebula a DMX address. Press the **Select** button on the remote control until the yellow DMX address LED is ON. Then use the **Up** and **Down** arrow buttons to select the address. Review the section titled “Setting Nebula’s DMX Address” on page 31 for more information.
2. Optionally, remove the remote control from the back of Nebula as shown in Figure 8 on page 30.
3. Make sure the controller is set up to recognize the address of each Nebula on the link. Consult the documentation provided with your controller for details.
4. Start connecting cabling with the controller. Consult the documentation provided with the controller for the procedure to connect XLR cable to its Data Out connector.

5. Connect the female end of the XLR cable from the controller to the first Nebula's male Data In connector.
6. Connect the male end of another XLR cable to the first Nebula's female Data Out connector.
7. Continue connecting the Data Out connector from one Nebula to the Data In connector to the next Nebula until you have linked all of the Nebulas.
8. Connect other devices as desired, using the instructions in the documentation provided with those devices.
9. Install a terminator in the Data Out port of the last device in the link. Instructions for building a terminator are shown in the section titled "Terminators" on page 36.
10. A level between 0-127 (or 0-50% on a fader-type controller) turns Nebula OFF and a level higher than 127 (or higher than 50% on a fader-type controller) turns Nebula ON.

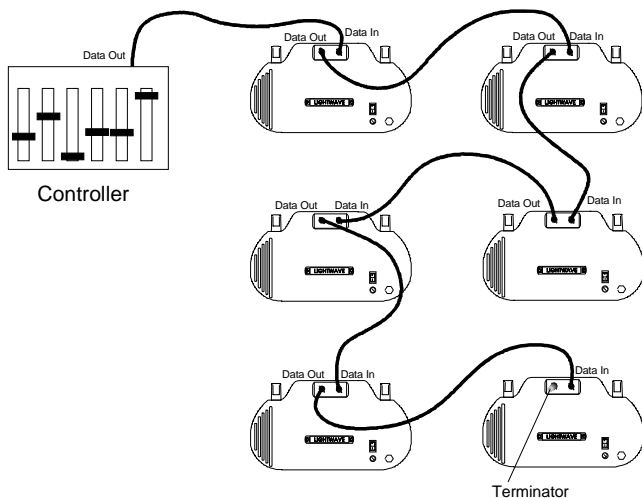


Figure 11. Make sure you connect the Data Out connector from

the previous Nebula to the Data In connector of the next Nebula.

Terminators

The last device on each link must have a 120 ohm, 1/4 watt (minimum) terminator attached to its Data Out connector. See the instructions below:

1. Obtain a male XLR connector.
2. Disassemble the connector.
3. Solder a 120 ohm resistor, minimum of 1/4 watt, between pins 2 and 3.
4. Reassemble the connector.
5. Install the terminator in the Data Out port of the last device in the link.

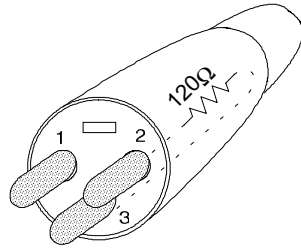


Figure 12. Assembling an XLR terminator. Place the terminator in the Data Out port of the last device in the link (whether that device is a Nebula or something else).

Operating Nebula™ Under Analog Control

Step 1: Remove the remote control

If you have not already done so, remove the four #8 screws holding the remote control panel to the rear of Nebula, as shown in Figure 13.

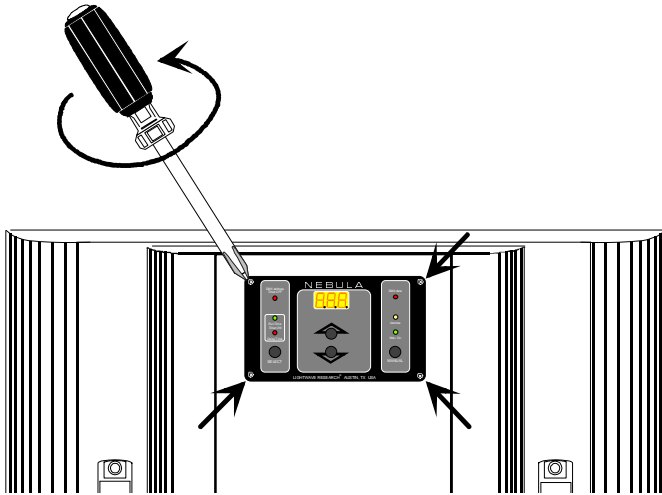


Figure 13. Removing the four Phillips screws securing the remote control to Nebula.

Step 2: Remove the cable

Lift the remote control from the back of Nebula, then remove the remote control cable as shown in Figure 14.

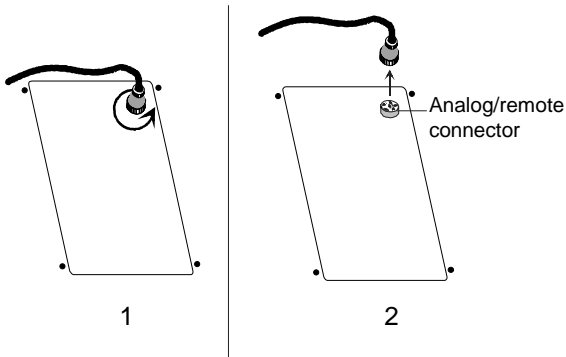


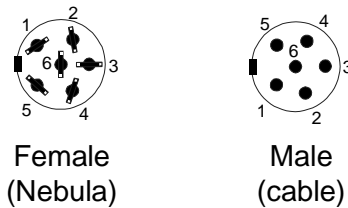
Figure 14. First, unscrew the bottom locking ring connector, then pull the cable straight up to reveal the analog/remote connector.

Step 3: Attach the 0–10 V line

Attach your analog control line to the analog/remote connector shown in Figure 14. All voltages must be applied to the control pin, as labeled in Figure 15.

- A voltage from 0-5V turns Nebula OFF.
- A voltage from 5V-10V turns Nebula ON.

Pinouts of male (cable) and female (Nebula) connectors are shown below:



- Pin 1:** Ground
- Pin 2:** +9V to remote
- Pin 3:** Control
- Pins 4, 5 and 6:** Not Used

Figure 15. Pinouts of male and female analog connectors.

Operating Nebula™ Under Timer Control

Nebula can be programmed to turn off and on under timer control for a period of time between 1 minute and 9 hours, 45 minutes. For example, you could program Nebula to turn on for 2 hours, 30 minutes, then turn off for 8 minutes.

Nebula continues cycling on and off under timer control until you stop it or until it runs out of fluid. (When Nebula runs out of fluid, it will simply stop producing haze; no damage to Nebula will result.)

Step 1: Select the run (on) time

Press the **Select** button on the remote control until the red Run Time LED is ON. Then press the **Up** and **Down** arrow buttons to select the length of time you want Nebula to run (stay on). Times are displayed in **H.MM** format; for example, the display below indicates 4 hours, 15 minutes.



Step 2: Select the delay (off) time

Press the **Select** button on the remote control until the red Delay Time LED is ON. Then press the **Up** and **Down** arrow buttons to select the length of time you want Nebula to delay (stay off).

Step 3: Start Nebula

Press the **Select** button on the remote control until the red Run Time LED is ON. After five seconds, Nebula starts. The status display

counts down the remaining run time.

Step 4: Turning Nebula OFF

There are four ways to turn Nebula off when it is under timer control:



- Press the **Up** and **Down** arrow buttons on the remote until **OFF** appears in the status display. Nebula shuts off in five seconds and will not restart under timer control until you select another value for Run Time. (**OFF** is between the times of 0.01 and 9.45).
- Press the **Select** button until the yellow DMX address LED comes ON. This takes Nebula out of timer control.
- Press the **Select** button on the remote until the red Delay time LED comes ON. This puts Nebula into delay mode, and starts the countdown timer. Nebula will turn back on again after the specified delay time has expired.
- Turn the Nebula power switch OFF.

Operating Nebula™ Under Manual Control

You can manually turn Nebula on and off from a remote location for any duration you wish. Manual control, when enabled, overrides both DMX 512 and timer control unless Nebula is already on.

In other words, if Nebula is off, pressing the **Manual** button on the remote immediately turns Nebula on and begins producing haze. If, however, Nebula is already on under either DMX or timer control, pressing the **Manual** button has no effect.

Step 1: Turn Nebula On

Press the **Manual** button on the remote; Nebula turns ON. The red Atomize LED and the red Man. On LED also come on.

Step 2: Turn Nebula Off

Press the **Manual** button on the remote; Nebula turns OFF.

Chapter 4

Maintenance and Troubleshooting

Checking the Power Supply Fuse

Nebula's two versions (120VAC and 230VAC) each have a different power supply fuse, as shown below. Before checking the fuse, make sure you have a replacement fuse of the same type and rating.

- 120VAC: 250V, 7A, Slow Blow Only
- 230VAC: 250V, 4A, Slow Blow Only

After obtaining a replacement fuse, follow the procedure below:

1. Turn Nebula OFF and unplug it from the power source.
2. Using a small flat-blade screwdriver or a coin, turn the fuse holder counter-clockwise to remove the fuse. The location of the fuse holder is shown Figure 16.

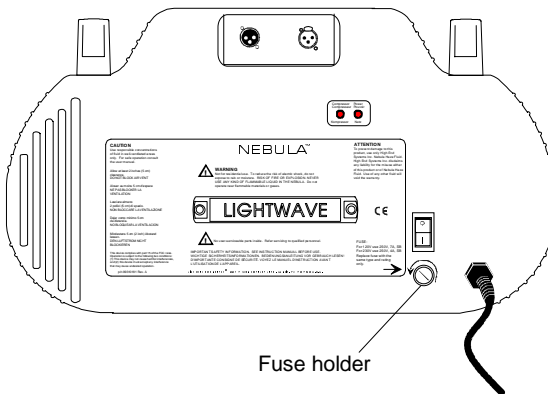


Figure 16. Location of the Nebula fuse holder.

3. If the fuse was damaged, replace it with one *of the same type and rating only.*
4. Carefully insert the fuse holder back into Nebula and tighten it by turning it clockwise.
5. Power ON Nebula, then follow the procedure below:
 - a. If the LEDs on the remote are OFF, plug Nebula into a known working outlet. If the LEDs are still OFF, contact High End Systems in one of the ways shown in “Getting Help” on page 17.
 - b. Make sure the tank door is open and Nebula has fluid as shown in the section titled “Filling and Positioning Nebula™” on page 22.
 - c. If the remote control is attached, press the **Manual** button. The compressor should come on and Nebula should immediately begin producing haze. If it does, no further action is required. If not, power Nebula OFF and obtain additional help as shown in the section titled “Getting Help” on page 17.
 - d. If an analog controller is attached to Nebula in place of its remote control, send a voltage of greater than 5V; Nebula should immediately start producing haze. If it does, no further action is required. If not, power Nebula OFF and obtain additional help as shown in the section titled “Getting Help” on page 17.

Routine Cleaning

- Periodically check Nebula's front and rear air vents to keep them clear of dirt and debris. Use a soft cotton cloth or a vacuum to clean the air vents. The location of the air vents is shown in Figure 17.

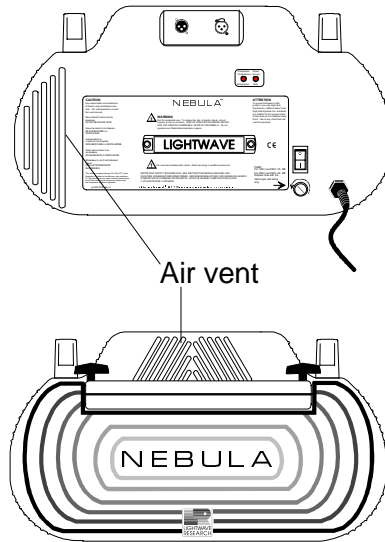


Figure 17. Make sure the air vents are kept free of dust and debris.

- Clean Nebula Haze Fluid from the outer surfaces of Nebula using a cloth, paper towels, or soapy water if necessary. Nebula fluid will not harm your skin or stain clothing.

Draining the Fluid Tank

Nebula is designed with a self-sealing fluid tank lid which should not leak during shipping or transport. However, if you wish to drain the fluid tank, you can do so by following the directions in this section.

Before beginning, make sure the following are true:

- You have your 2 liter container of Nebula Haze Fluid. (The Nebula fluid tank holds 2 liters.)
- Nebula must be connected to a power outlet. You will need to turn Nebula ON in order to drain the tank.



Warning

Draining Nebula Haze Fluid into anything else than a Nebula Haze Fluid container can result in fluid contamination, damage to Nebula and possible injury to persons.

Step 1: Position Nebula

Position Nebula flat on its bottom as shown in Figure 2 on page 22.

Step 2: Close the tank lid

Before draining the tank, close the tank lid and firmly tighten the handles.

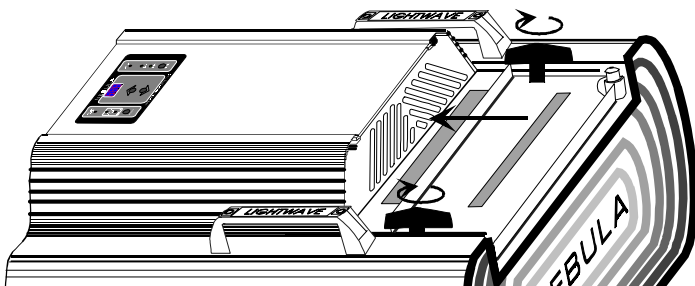


Figure 18. Close the tank lid before draining Nebula fluid.

Step 3: Lift drain cap out of Nebula

Lift the drain cap and drain hose straight out of the top of Nebula.

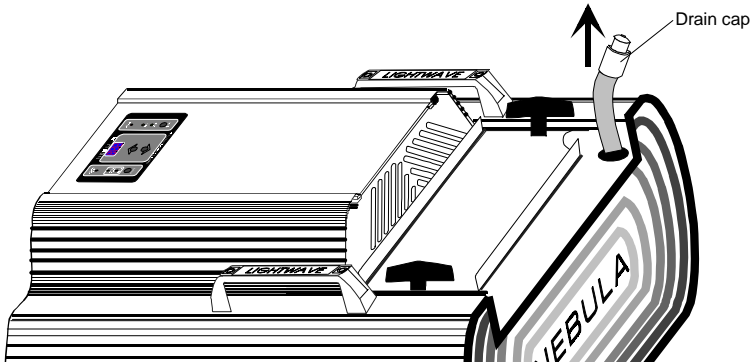


Figure 19. Lift the drain cap straight out of the top of Nebula.

Step 4: Position Nebula Haze Fluid container

Position the drain cap near the opening of the Nebula Haze Fluid container.

Step 5: Pull up on the drain cap

Pull up on the top of the drain cap to allow fluid to flow through it.



Step 6: Turn Nebula ON

Turn the power switch ON, then press the Manual button on the remote; Nebula turns ON. The red Atomize LED and the red Man. On LED also come on.

Step 7: Turn Nebula OFF when finished

When all fluid has drained out of Nebula, turn the power switch OFF and replace the drain hose.



Note The length of time you leave Nebula ON is not critical. Running the compressor for a greater length of time than necessary to drain the fluid will not harm the unit.

Troubleshooting

Problem: None of the LEDs on the remote light up.

Solutions:

- Make sure Nebula is plugged into a known working outlet.
- Make sure the power switch is ON.
- Make sure the remote cable is locked into its socket with the locking ring. See Figure 14 on page 38.
- Check the power supply fuse as shown in the section titled “Checking the Power Supply Fuse” on page 42.

Problem: The unit is on, but no haze is produced.

Solutions:

- Make sure the tank door is open and Nebula has fluid as shown in the section titled “Filling and Positioning Nebula™” on page 22.
- Press the **Manual** button on the remote; Nebula should begin producing haze immediately. If not, obtain additional help as shown in the section titled “Getting Help” on page 17.

Problem: DMX data LED doesn't illuminate when data is sent to unit.

Solutions:

- Verify the integrity of XLR cable using cable test equipment or replace with known good cable.

- Check to see that XLR cables are attached to the proper connectors on the remote control (see Figure 11 on page 35). Make sure the remote control is attached to the unit properly as shown Figure 14 on page 38.
- If all other LEDs on the remote control are OFF, check the fuse as shown in the section titled “Checking the Power Supply Fuse” on page 42.
- Make sure Nebula is in DMX mode: the yellow DMX address LED should be ON and a number between 1 and 512 should appear in the status display. If not, press the **Select** button on the remote until the yellow DMX address LED comes ON, then use the **Up** and **Down** arrow buttons to set a DMX address.
- Confirm that Nebula’s DMX address is the same as the address assigned on the controller.



Note

Multiple Nebulas can be assigned the same address, but a Nebula should not be assigned the same address as a different device, such as a lighting fixture. Doing so could cause confusion but will not prevent Nebula from operating.

Problem: DMX data LED is illuminated, but the unit is not responding to data.

Solutions:

- Confirm that Nebula's DMX address is the same as the address assigned on the controller.
- Verify the integrity of XLR cable using cable test equipment or replace with known good cable.



Note Multiple Nebulas can be assigned the same address, but a Nebula should not be assigned the same address as a different device, such as a lighting fixture. Doing so could cause confusion but will not prevent Nebula from operating.


Appendix A

IMPORTANT SAFETY INFORMATION

1. Please note and heed all of the WARNING labels on the Nebula unit.
2. This product is intended for use with Nebula Haze Fluid only. Manufacturer disclaims any and all liability for the misuse of this product and/or Nebula Haze Fluid fog generating fluid.
3. Use responsible concentrations of fog.
4. The area in which this product is to be used should be well ventilated.
5. Do not install this unit directly over an audience or performers.
6. Do not point discharge directly into an audience.
7. Do not operate near flammable materials or gases.
8. No user serviceable parts inside the unit. Refer service to qualified personnel.
9. Do not expose to rain or moisture.
10. Not for residential use.
11. If this equipment was received without a line cord plug, attach the appropriate line cord plug according to the following code:
 - BROWN-LIVE
 - BLUE-NEUTRAL
 - GREEN/YELLOW-EARTH

THIS EQUIPMENT MUST BE EARTHED.

12. As the colours of the cores in the mains lead of this equipment may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:

- the core which is coloured green and yellow must be connected to the terminal in the plug which is marked with the letter *E* or by the earth symbol , or coloured green or green and yellow.

- the core which is coloured blue must be connected to the terminal which is marked with the letter *N* or coloured black.

- the core which is coloured brown must be connected to the terminal which is marked with the letter *L* or coloured red.

THIS EQUIPMENT MUST BE EARTHED

13. **WARNING: RISK OF FIRE OR EXPLOSION. NEVER USE ANY KIND OF FLAMMABLE LIQUID IN THE NEBULA.**

Appendice A

IMPORTANT: INFORMATIONS DE SÉCURITÉ

1. Veiller à ce que toutes les étiquettes de MISE EN GARDE soient correctement marquées et apposées sur l'appareil Nebula.
2. Ce produit n'est à utiliser qu'avec du brouillard atmosphérique produisant exclusivement du liquide. Le fabricant dénie chacune et toutes les responsabilités concernant le mauvais usage de ce produit et/ou du brouillard Nebula Haze Fluid produisant exclusivement du liquide.
3. Utiliser des concentrations raisonnables de brouillard.
4. La tuyère et la façade de l'appareil peuvent être très chaud.
5. La zone au sein de laquelle le produit est utilisé devrait être bien aérée.
6. Ne pas directement disposer l'appareil au-dessus de la foule ou les interprètes.
7. Ne pas diriger l'évacuation directement sur la foule.
8. Ne pas utiliser à proximité de matières inflammables ou gazeuses.
9. Ne pas placer les mains, le visage ou tout autre partie du corps à côté de l'échangeur de chaleur ou de l'orifice de sortie de chaleur.
10. L'utilisateur ne peut pas accéder aux pièces à l'intérieur de cet appareil. Seul du personnel qualifié est habilité à réparer cet appareil.
11. Ne pas exposer l'appareil à la pluie ou l'humidité.
12. Cet appareil n'est pas destiné à un usage domestique.
13. Si l'appareil n'a pas été livré avec une prise de cordon électrique, attacher la prise de corde électrique conformément au code suivant:
 - BRUN- BRANCHE
 - BLEU- NEUTRE
 - VERT/JAUNE - TERRE

L'EQUIPEMENT DOIT ETRE MIS A LA TERRE.

14. MISE EN GARDE: RISQUE D'INCENDIE OU D'EXPLOSION. NE JAMAIS UTILISER QUELQUE TYPE DE LIQUIDE INFLAMMABLE QUE CE SOIT AVEC LE NEBULA.

Anhang A

WICHTIGE SICHERHEITSHINWEISE

1. Bitte beachten und befolgen Sie alle WARNUNG-Schilder auf dem Nebula Gerät.
2. Dieses Produkt ist ausschließlich für den Gebrauch mit der nebelerzeugenden Flüssigkeit Nebula Haze Fluid bestimmt. Der Hersteller lehnt ausdrücklich jegliche Haftung bei Mißbrauch dieses Produktes und/oder der nebelerzeugenden Flüssigkeit Nebula Haze Fluid ab.
3. Nebel stets nur in mäßiger Konzentration verwenden.
4. Die Düse und das Vorderteil des Gerätes können sehr heiß werden.
5. Dieses Gerät sollte nur in gut belüfteten Räumen verwendet werden.
6. Montieren Sie dieses Gerät nie direkt über den Zuschauern oder den Schauspielern.
7. Richten Sie den Ausstoß nie direkt auf das Publikum.
8. Auf keinen Fall in der Nähe von brennbaren Substanzen oder Gasen betreiben.
9. Legen Sie während des Betriebs niemals Hände, Gesicht oder andere Körperteile in die Nähe des Wärmeaustauschers oder Ventils.
10. Das Gerät enthält keine wartungsfähigen Teile. Service sollte stets nur von Fachpersonal durchgeführt werden.
11. Vor Feuchtigkeit und Nässe schützen.
12. Nicht für den Hausgebrauch bestimmt.
13. Falls dieses Gerät ohne Netzstecker geliefert wurde, schließen Sie bitte ein Netzstecker nach folgendem Farbschlüssel an:
 - BRAUN- STROMFÜHREND
 - BLAU- NEUTRAL
 - GRÜN/GELB- GEERDET

DIESES GERÄT MUSS GEERDET WERDEN

14. **WARNUNG: BRAND- ODER EXPLOSIONSGEFAHR. NIEMALS EINE BRENNBARE FLÜSSIGKEIT IM NEBULA GERÄT VERWENDEN.**

Apéndice A

INFORMACIÓN IMPORTANTE DE SEGURIDAD

1. Por favor, observe y tome en cuenta todos los rótulos de ADVERTENCIA de la unidad Nebula.
2. Este producto ha de usarse solamente con el líquido neblinógeno Nebula Haze Fluid. El fabricante desconoce toda responsabilidad del uso errado o abuso de este producto y/o del líquido neblinógeno Nebula Haze Fluid.
3. Ejerza un criterio responsable al usar concentraciones de niebla.
4. Es posible que la boquilla y la parte frontal de la unidad esté muy calientes.
5. La zona donde haya de aplicarse este producto deberá estar bien ventilada.
6. No instale esta unidad directamente por encima del público de actores, artistas o intérpretes.
7. No descargue puntualmente de forma directa sobre el público.
8. No opere la unidad cerca de materiales o gases inflamables.
9. Durante el funcionamiento de la unidad, no coloque las manos, rostro u otra parte del termopermutador o de la salida.
10. El interior de la unidad no contiene repuestos que puedan ser reparados por el usuario. Solicite el servicio de reparación de personal calificado.
11. No exponga la unidad a la lluvia o a la humedad.
12. Prohibido su uso en ambientes residenciales.
13. Si se ha recibido este equipo sin un enchufe macho de cable de alimentación, conecte el enchufe macho de cable alimentación adecuado según los códigos siguientes:
 - MARRÓN - CON CORRIENTE
 - AZUL - NEUTRO
 - VERDE/AMMARRILLO - TIERRA

ESTE EQUIPO DEBE CONECTARSE A TIERRA.

14. ADVERTENCIA: RIESGO DE INCEDIO O EXPLOSIÓN. JAMÁS USE NINGÚN TIPO DE LÍQUIDO INFLAMABLE EN EL NEBULA.

Appendice A

INFORMACIÓN IMPORTANTE DE SEGURIDAD

1. Si prega di seguire tutte le AVVERTENZE della unita' Nebula.
2. Questa apparecchiatura e da usarsi soltanto con il liquido Nebula Haze Fluid per la generazione di nebbia. Il fabbricante non si fa responsabile per i danni causati dal uso inadeguato tanto di questo prodotto quanto del liquido Nebula Haze Fluid per la generazione di nebbia.
3. Produrre nebbia in ragionevoli concentrazioni.
4. L'imboccatura e la parte anteriore della unita' possono arrivare ad alte temperature.
5. Questa apparecchiatura e da usarsi in un ambiente ben ventilato.
6. Questa apparecchiatura non deve essere installata al di sopra di dove si trovano gli spettatori o gli artisti.
7. Questa apparecchiatura non si deve rivolgere ne scaricare direttamente verso gli spettatori.
8. Questa apparecchiatura non si deve usare ne vicino a materiali ne a gas infiammabili.
9. Durante l'uso non avvicinarsi ne con le mani, ne ool viso, ne con nessuna altra parte del corpo allo scambiatore di calore o alla presa di corrente.
10. L'utente non deve riparare nessuna parte dentro l'unita'. Per qualsiasi riparazione rivolgersi al personale specializzato.
11. Questa apparecchiatura non deve essere esposta ne alla pioggia ne all' umidita'.
12. Questa apparecchiatura non e' per uso domestico.
13. Nel caso in cui questa apparecchiatura fosse ricevuta senza il debito cavo completo di spina, collegarne uno apropiato seguendo i successivi codici:
 - MARRONE-SOTTO TENSIONE
 - BLU-NEUTRALE
 - VERDE/GIALLO-A TERRA

QUESTA APPARECCHIATURA DEVE METTERSI A TERRA.

14. **AVVISO: RISCHIO D' INCENDIO O DI ESPLOSIONE. NON USARE MAI NESSUN TIPO DI LIQUIDO INFIAMMABILE NEL NEBULA.**

Appendiks A

VIGTIG SIKKERHEDSINFORMATION

Advarsel: Beskyttelse mod elektrisk chock.

Vigtigt!

Lederen med gul/groen isolation maa kun tilsluttes en klemme maerket.



eller



INDEX

A

Accessories 18
Amount of haze 24
Analog control 36 to 37
 connector pinouts 37
 using 37
Atomize LED 28, 40, 45

C

Cabling
 analog 37
 constructing 31 to 32
 pinouts 32, 37
 specifications 15, 31
 terminators 35
Cap, power cord 19
Cleaning Nebula 43
Cleaning up fluid 22
Contents of packaging 17
Controller
 connecting Nebula to
 33 to 34, 36 to
 37
 no response 48

D

Data cables 31
Delay time 38
Delay Time LED 27
Design suggestions 24 to
 25
Dimensions 14

DMX 512
 addressing 30
 connecting to controller
 33 to 34
 LED not on 46
 linking devices 33
 not responding to
 controller 48
DMX address LED 27, 30
DMX data LED 28, 46, 48
Draining fluid 44 to 45

E

EIA RS-485 31
Emptying fluid 44 to 45
Estimating haze 24

F

Filling Nebula 21 to 23
Fixing problems 46 to 48
Fluid 15
 draining 44 to 45
 filling 21 to 23
 opening tank 29
Fuse
 replacement 41 to 42
 specifications 14

G

Getting help 16

H

Haze
 estimation 24
 fluid 15
 regulating volume 26
 troubleshooting 46
Help 16

I

Intermittent timer control
 38 to 39

K

Keeping Nebula clean 43

L

LED
 all off 42, 46
 Atomize 28, 40, 45
 Delay Time 27, 38
 DMX address 27, 30
 DMX data 28, 46, 48
 Man. on 28, 40, 45
 Run Time 27, 38
LEDs do not light 46
Line cord cap 19
Linking fixtures 33

M

Maintenance
 cleaning 43
 draining fluid 44 to 45
 replacing fuse 41 to 42
Man. on LED 28, 40, 45
Manual control 40

N

Nebula
 accessories 18
 amount of haze 24
 analog control 36 to 37
 contents 17
 data ports 33 to 34
 dimensions 14
 DMX control. *See* DMX
 512
 filling 21 to 23
 fixing. *See*
 Maintenance
 fluid, draining 44 to 45
 fluid, filling 21 to 23
 fuse replacement 41 to
 42
 fuses 14
 haze fluid 15
 help 16
 line cord cap 19
 maintenance. *See*
 Maintenance
 manual control 40
 no haze 46
 opening tank door 29
 operating 26
 optional accessories 18
 overfilling 22
 positioning 21 to 23, 24

- to 25
- power cord cap 19
- precautions 17 to 18
- problems 46 to 48
- product versions 16
- regulating haze 26
- remote. See Remote control
- replacing fuse 41 to 42
- safety precautions 17 to 18
- safety standards 15
- smoke detectors 23
- specifications
 - cabling 15
 - dimensions 14
 - electronics 14
 - fuses 14
 - haze fluid 15
 - power 14
 - safety 15
 - weight 14
- suggestions 24 to 25
- technical support 16
- terminators 35
- timer control 38 to 39
- troubleshooting 46 to 48
- using 24 to 25
- versions 16
- weight 14
- XLR cabling 15

Nebula Haze Fluid 15

- cleaning 22
- draining 44 to 45
- filling 21 to 23

No DMX data LED 46

No haze produced 46

O

- Opening tank door 29
- Operating Nebula 26
- Optional accessories 18
- Overfilling Nebula 22

P

Pinouts

- analog connectors 37
- XLR connectors 32

Power cord cap 19

Power requirements 14

Precautions 17 to 18

Product versions 16

R

Regulating haze 26

Remote control

- components 27 to 28
- DMX data ports 33 to 34
- removing 29
- replacement 18

Replacing fuse 41 to 42

Routine maintenance 43

Run time 38

Run Time LED 27, 38

S

Safety precautions 17 to 18

Safety standards 15

Smoke detectors 23

Specifications

- dimensions 14
- electronics 14
- fuses 14
- Nebula Haze Fluid 15
- power requirements 14
- safety 15
- weight 14

Spills 22

Suggestions 24 to 25

X

XLN cabling

- constructing 31 to 32
- pinouts 32
- specification 31
- specifications 15
- terminators 35

T

Tank door, opening 29

Tank, draining 44 to 45

Technical support 16

Terminators 35

Thyristors 14

Timer control 38 to 39

- delay time 38

- run time 38

- turning off 39

Tips 24 to 25

Troubleshooting 46 to 48

V

Versions 16

Volume of haze 26

W

Weight 14

What's in the box 17

Where to put Nebula 24 to
25