Table of contents

1 Introduction 5
  1.1 Icons Used 5
  1.2 About this Manual 5
2 Product Description 6
  2.1 Intended Use 6
  2.2 Items Included 7
  2.3 Components 7
  2.4 Connector panel 7
  2.5 System Requirements for Operation 8
3 Safety Instructions 9
  3.1 General Safety Instructions 9
  3.2 Instructions for Speaker Placement 9
  3.3 Protecting the Speakers, Reliability 10
  3.4 Preventing Hearing Damage 10
4 Placement 11
  4.1 Using a Speaker Stand (Optional) 11
    4.1.1 Safety Notes When Using a Stand 11
    4.1.2 Speaker-stand assembly 11
5 Wiring 15
6 Initial Operation 15
7 Setups and Connection Diagrams 16
  7.1 Sample configurations: 17
  7.2 Connection 18
  7.3 Available presets 18
8 Dimensions 19
9 Measuring Diagrams 20
  9.1 Monitor with SystemAmp 20
  9.2 Monitor linear 20
  9.3 Topl with SystemAmp 21
  9.4 Top linear 21
10 Technical Specifications 22
11 Accessories 23
12 Care and Maintenance 24
13 Transportation and Storage 25
14 Disposal 25
  14.1 Germany 25
<table>
<thead>
<tr>
<th></th>
<th>14.2 EU, Norway, Iceland, and Liechtenstein</th>
<th>25</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>14.3 All Other Countries</td>
<td>26</td>
</tr>
<tr>
<td></td>
<td>15 Notice</td>
<td>27</td>
</tr>
</tbody>
</table>
1. Introduction

Thank you for purchasing a KLING & FREITAG product. To guarantee trouble-free operation and enable your KLING & FREITAG SCENA 12 system to achieve its full potential, please read this manual carefully before use. You will find that your SCENA 12 is truly a versatile pro-grade tool that meets all requirements in terms of audio quality and safe installation.

1.1 Icons Used

Warning

This icon indicates a risk of injury or death. Not following these instructions may result in serious health problems including potentially fatal injuries.

Caution

This icon indicates a possibly dangerous situation. Not following these instructions may cause minor injuries or damage.

Notice

This icon marks instructions for proper use of the described products. Not following these instructions may cause malfunctions or damage.

Tip

This icon marks information provided for simplified use of the described products.

1.2 About this Manual

© KLING & FREITAG GmbH. All rights reserved.

All specifications regarding the features of the described products and applicable safety guidelines provided in this manual are based on information available at the time of publishing.

We assume no responsibility for technical specifications, dimensions, weights, and properties.

All information in this manual is subject to change without notice.

To ensure safe operation, all persons using the system must have access to this guide and all other relevant material during installation. Don’t set up or operate the system before you have carefully read and fully understood this manual. Keep the manual readily available on site at all times.

All KLING & FREITAG manuals are originally authored in German.

KLING & FREITAG spare manuals are separately available for order or can be downloaded from our website: www.kling-freitag.de.

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KLING & FREITAG GMBH, Junkersstr. 14, D-30179 Hannover
Phone +49 511 96 99 70, fax +49 511 67 37 94 (other countries)
2. Product Description

The K&F SCENA 12 is a compact 2-way coaxial stage monitor. The speaker can be driven either through separate K&F system amplifiers or linear power amplifiers up to 750 W rms per channel (8 ohms). A switch is provided on the connector panel for supporting the use of 4-wire SpeakOn cables, thus allowing for toggling between two power-amp channels. Using the K&F SCENA 12 speaker-stand adapter, you can also mount the speaker to a speaker-stand. Thanks to its 2-handle design and the low weight of just 18.4 kg (40.56 lbs) the speaker can be carried by a single person. The speaker dimensions are 497 mm × 299 mm × 469 mm (W × H × D).

2.1 Intended Use

Be sure to use the K&F SCENA 12 speaker system only with approved system amplifiers, controllers, or linear amplifiers with a at 750 W rms output (max.) and an impedance of 8 ohm. For audio reproduction only.

In general, this product is designed for indoor use. You can also operate it in an outdoor setting if it is sufficiently protected against rain, water, winds, etc. This product is not designed for prolonged use in corrosive environments.

Unless otherwise stated, use only KLING & FREITAG original parts specifically designated for mounting this system.

To be installed and operated by qualified personnel only.

Any other use not described in this document is not an intended use.
2.2 Items Included

- (1x) K&F SCENA 12 speaker
- (1x) User manual

2.3 Components

1. **Enclosure:**
2. **Front grille** (hex hole pattern) backed with an acoustic-foam layer.
3. **SpeakOn port** (1 on each side)
4. **Plastic sliding block** (3, for vertical placement)
5. **Handle**
6. **Non-slip rubber feet**, (4, for horizontal placement)
7. **Connector panel**

2.4 Connector panel

1. **Speakon port**
2. **Channel selector**
3. **Speakon port**
2.5 System Requirements for Operation

Lab.gruppen IPD 2400

or

K&F PLM+ 20k44 (ProRental system amp)
K&F PLM+ 12k44 (ProRental system amp)
K&F PLM+ 5k44 (SystemAmp, ProRental)

with

K&F Connector Panel CP+ (optional)

or

K&F D200:4 (InstallSound system amp)
K&F D120:4 (InstallSound system amp)
K&F D80:4 (InstallSound system amp)
K&F D40:4 (InstallSound system amp)
K&F D20:4 (InstallSound system amp)
K&F D10:4 (InstallSound system amp)

or

K&F SystemRack
3. Safety Instructions

3.1 General Safety Instructions

Warning

The information described here does not relieve the user of the duty to follow the given safety requirements and legal regulations.

The technicians responsible for installing the system on site are responsible for and guarantee safe setup and use.

To prevent injury and damage, be sure to securely place or suspend the speaker system as specified in the DGUV regulations 17 (BGV C1) or similar locally applicable accident-control standards.

Unless otherwise stated, use only KLING & FREITAG original parts specifically designated for mounting this system. Never use other parts (in particular, parts not made by KLING & FREITAG).

Be sure to always visually inspect all accessories and loudspeakers before use. In fixed installations, regularly check all system components for signs of wear. Visual inspection includes checking the system components of the speakers as well as the mounting components. During the inspection, check all mounting components carefully for deformations, cracks, bolt damage, and corrosion. If there are signs of wear, cracks, or deformation, etc., replace the affected parts immediately. See also the “Care and Maintenance” chapter on page 24.

For information on carrying the speaker using the two lateral handles, refer to the Transport chapter on page 25.

3.2 Instructions for Speaker Placement

Warning

Speakers tipping or falling over impose a deadly risk for people standing near-by!

Always consider potential risks when placing the speakers and perform all appropriate steps required for safe operation.

Special attention is required when placing the speaker near a stage edge, on a speaker-stand, or at an elevated place.

Note that the speaker can start moving due to vibrations, in particular, when placed vertically on the 3 sliding blocks. These sliding blocks are mainly provided for transport purposes.

Therefore, because the speaker is compact and lightweight, sudden lateral forces such as gusts, bumps, or shocks may affect the speaker’s stability, resulting in falling over. Be sure to avoid these, in particular, when the speaker has been placed vertically.

When placing the speaker on a speaker stand, be sure to observe the detailed information in the ’Using a Speaker Stand’ chapter on page 11.

At all times, ensure that the speaker cannot fall down or tip over.

When assessing potential risks, also keep the speaker cable in mind. Run the cables in a way that nobody can trip over them. In addition to the main connector panel at the bottom, the K&F SCENA 12 speaker provides extra SpeakOn ports on the side panels. Using those lateral ports increases the risk of tripping.
Unless this is impossible due to speaker placement or the general stage setting, be sure to take appropriate measures including, for example, using cable bridges in order to avoid tripping.

If necessary, use the main ports located at the bottom. In this case, too, be sure to avoid any risk of tripping.

### 3.3 Protecting the Speakers, Reliability

Be sure to connect the K&F SCENA 12 speaker to a K&F SystemAmp, a K&F SystemRack, or a linear power amp with up to 750 Wrms per channel (8 ohms) only.

Never feed audio at excessive levels to the speaker. Mixing consoles, equalizers, effect units, etc. can produce clipping; excessive levels are normally visible on meters and through indicators. Clipping at the power-amp output is typically shown by a red clipping indicator. In any case, be sure to lower the signal level once it sounds distorted.

The built-in overload protection serves to protect the loudspeaker in case of high load on the loudspeaker, such as feedback over a longer period of time. For this purpose, the loudspeaker is completely separated from the signal. The interruption is cancelled after about 10 seconds.

In no event, Kling & Freitag will warrant against any damages caused be excessive input levels and cannot accept liability for any consequential damages.

Signals that may damage the speakers include the following:

- Continuous high-volume signals at high frequencies, continuous audio feedback
- Continuously distorted signals at high levels
- Sounds occurring when connecting, disconnecting, or switching on a device on the audio system while the speaker is on

Never place your speakers

- where they are permanently exposed to direct sunlight,
- where they are exposed to high moisture,
- where they are exposed to strong vibrations or dust.

**Damage Caused by the Speaker’s Magnetic Fields**

Even when not connected, loudspeakers continuously produce a magnetic field. Therefore, when transporting or placing the speaker, be sure to keep a minimum distance of about 1 meter between the speaker and magnetic disks or computer/video displays.

### 3.4 Preventing Hearing Damage

Keep your distance from operating speakers. This equipment is capable of delivering sound pressure levels in excess of 90dB SPL, which may cause permanent hearing damage.
4. Placement

The K&F SCENA 12 loudspeaker features two different foot types at the bottom and on the right side panel.

The right-hand side features plastic sliding (1). These are mostly suitable for temporarily putting the speaker down during transport. When operating the speaker in a vertical position (i.e. placed on the sliding blocks), it may start moving due to vibration, so be sure to secure it appropriately.

When using the speaker as a stage wedge, place it horizontally on the non-slipping rubber feet at the bottom. These compensate vibrations in operation and will keep the speaker in its position.

4.1 Using a Speaker Stand (Optional)

4.1.1 Safety Notes When Using a Stand

Place the stand securely on a level surface.

Stands require additional safeguard in the following and similar cases:

- The supporting surface does not allow for secure placement.
- The stability may be affected by the system height.
- Winds may occur.
- Persons may run into the system, causing it to fall down.

Suitable measures for securing stands include, for example:

- Weighting the stand shoes down
- Guying to stable objects
- Blocking access to the standing area
- Assigning security staff

Specific actions might become necessary to prevent threatening audience behavior.

Never place stands on emergency escape routes. Before placing speaker-stands on traffic routes, make sure the path width is sufficient and all required blocking and marking actions have been taken.

Remember that placing speakers onto or removing them from speaker-stands poses specific risks. Be sure to use means suitable for the purpose (for example, platforms).

Before mounting, make sure the ground is level and will not give way to the speaker system weight. Use only highly stable speaker stands designed for handling the weight of the K&F SCENA 12 loudspeaker. Also keep in mind that many stands are not designed to withstand lateral forces caused by gusts or bumps and might easily fall over. Similarly, the K&F SCENA 12 speaker-stand adapter is not designed for withstanding high lateral forces or shocks.
4.1.2 Speaker-stand assembly

To mount the K&F SCENA 12 speaker-stand adapter:

1) Remove the 2 filler plugs from the right side panel of the K&F SCENA 12 speaker.

2) Align the K&F SCENA 12 speaker-stand adapter.

3) Tighten the K&F SCENA 12 speaker-stand adapter using the M10 x 80 screws and the Locktix washers supplied with the speaker stand adapter.
4) Check the K&F SCENA 12 speaker-stand adapter for secure fit.

5) Place the caps onto the screw heads.

6) Put the K&F SCENA 12 speaker onto the speaker-stand.

7) Align the speaker.
8) Check for a secure connection and fasten the speaker using the rotary knob on the K&F SCENA 12 speaker-stand adapter.

9) Speaker installation is now complete, so you can safely wire the speaker.
5. Wiring

- Before connecting your K&F SCENA 12 speaker, switch off all devices and turn down all faders and encoders.
- Be sure to use high-end speaker cables with an appropriate wire gauge. Select the wire gauge with regard to the cable length.
- To connect the mixing console to the power-amp inputs, use shielded 2-pole balanced microphone cables equipped with quality connectors.
- Avoid creating ground loops.
- Be sure to follow the pinouts shown in this manual.
- Check for correct polarity of the speaker links to the power amplifier. When using amplifiers by different manufacturers, make sure the pinout is correct. If necessary, consider modifying the amplifier or connector pinouts as required.
- Upon completing wiring, ensure that the connected speaker channels are working in phase, for example, using a phase tester. When the connected channels are used simultaneously, you can identify out-of-phase statuses by bass cancellation or mid-frequency signals (e.g. voices) that cannot be located properly.
- When connecting multiple speakers, you can daisy-chain the signal from one speaker to the next. Make sure that the total impedance of all speakers connected to an amplifier does not fall below the minimum impedance specified for the amplifier. $1/R_1 + 1/R_2 + 1/R_3 + \ldots = 1/R_{total}$

6. Initial Operation

- Switch off all devices and turn down all volume controls on the mixing console and the amplifiers.
- Wire your K&F SCENA 12 systems as described in this manual.
- Switch on the devices in the following order: first the mixing console, then the controller and finally the power amplifiers! Be sure to observe this power-up sequence at all times. Failing to do so may result in switch-on noise that may damage your system.
- If you hear noise, turn off all devices in reverse order, then check all cable connections.
- Turn up all amplifier channels one after another and output a low-volume signal to the system. Check whether the audio is properly routed to the appropriate speakers. Make sure no noise is heard through those speakers.
- With amplifiers with insufficient input-stage headroom, you may not always be able to prevent distortion by reducing the power-amp volume controls. In this case, the clipping indicator may not light when clipping actually occurs! To prevent damage to the speakers, we recommend fully turning up the power-amp volume controls, then carefully turn up the volume on the mixing console or controller or reduce the limiter threshold of the controller as appropriate in order not to overload the amplifiers.
- When turning off the system, first turn down the amplifier input controls. Next, power down the amplifiers, then turn off the remaining devices.
7. Setups and Connection Diagrams

The K&F SCENA 12 offers much flexibility in terms of cabling and operation. You can connect a maximum of six speakers to a 4-wire NL4 cable fed by two amp channels. For example, the first line could run from the amp to a main-terminal port. Further speakers can be connected to either a main port or one of the lateral aux ports. The K&F SCENA 12 supports all reasonable connection types.

If you use a four-wire cable fed from two amp channels, you can select the output channel individually on each K&F SCENA 12 speaker. You can connect up to three speakers per channel.

If you don’t need to select a specific channel, you can also use a 2-wire NL4 cable. In that case, be sure to set the channel selector to channel 1. Otherwise, you won’t hear anything.

Connect the desired number of speakers (up to three channels per speaker, i.e. six in total) and use the channel selector for setting the actual output channel.

- a: Playback of channel 1
- b: Playback of channel 2
7.1 Sample configurations:

All wires of the following examples are ‘Speakon NL4’.

Example 1:

Example 2:

Example 3:

Example 4:
7.2 Connection

7.3 Available presets

There are four different presets for the K&F SCENA 12 speaker. They are divided into 'Monitor' and 'Top' and whether subwoofers are connected or not.

From the following table you can see for each application the intended preset.

If necessary, adjust the correct level balance with the output gain of the subwoofer on the K&F systemamp or systemrack.

Overview LS-blocks:

<table>
<thead>
<tr>
<th></th>
<th>Use as stage monitor</th>
<th>Use as front loudspeaker/top</th>
</tr>
</thead>
<tbody>
<tr>
<td>without subwoofer</td>
<td>SCENA 12 Monitor FR</td>
<td>SCENA 12 Topteil FR</td>
</tr>
<tr>
<td>with subwoofer</td>
<td>SCENA 12 Monitor LCut</td>
<td>SCENA 12 Topteil LCut</td>
</tr>
<tr>
<td>(in standard-preset)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>with subwoofer,</td>
<td>SCENA 12 Monitor FR</td>
<td>SCENA 12 Topteil FR</td>
</tr>
<tr>
<td>(in 60 Hz Preset)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
8. Dimensions

Weight: 18.4 kg
9. Measuring Diagrams

9.1 Monitor with SystemAmp

Frequenzgang 'on axis'

Frequenzgang 'on axis'

9.2 Monitor linear

Frequenzgang 'on axis'

Frequenzgang 'on axis'
9.3 Topl with SystemAmp

Frequenzgang 'on axis'

9.4 Top linear

Frequenzgang 'on axis'
## 10. Technical Specifications

### K&F SCENA 12

<table>
<thead>
<tr>
<th>Concept</th>
<th>2-way passive bass-reflex system</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency range @-10 dB</td>
<td>55 Hz – 20 kHz</td>
</tr>
<tr>
<td>Frequency range @±3 dB</td>
<td>65 Hz – 18 kHz</td>
</tr>
<tr>
<td>Coverage angle (nominal)</td>
<td>80° × 80° (hor. × vert.)</td>
</tr>
<tr>
<td>Power rating</td>
<td>550 W</td>
</tr>
<tr>
<td>Program load</td>
<td>1,100 W</td>
</tr>
<tr>
<td>Peak load</td>
<td>2,200 W</td>
</tr>
<tr>
<td>SPL (1 m, max.)</td>
<td>134 dB</td>
</tr>
<tr>
<td>Nominal impedance</td>
<td>6 ohm</td>
</tr>
<tr>
<td>Speakers / channels</td>
<td>3 / 1</td>
</tr>
<tr>
<td>Components</td>
<td>1.4” tweeter&lt;br&gt;12” coax chassis</td>
</tr>
<tr>
<td>Connection</td>
<td>Main port 2 × SpeakOn 4-pole NLT4MP (+1/-1), IN parallel to OUT&lt;br&gt;Side panel: 2 × SpeakOn 4-pole NL4MPR (+1/-1), IN parallel to OUT</td>
</tr>
</tbody>
</table>

### Enclosure

Made of 15-mm multiplex board with a highly robust polyurea coating and RAL 9005 (black) finish, 32° directional angle, ergonomic handles on both side panels, pole-mount points, hidden connector panel, non-slip rubber feet, impact-proof 2-mm grille backed with acoustic foam.

<table>
<thead>
<tr>
<th>Dimensions (W × H × D):</th>
<th>497 mm × 299 mm × 469 mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight</td>
<td>18.4 kg</td>
</tr>
<tr>
<td>Color</td>
<td>RAL 9005 (black)</td>
</tr>
</tbody>
</table>
11. Accessories

K&F SCENA 12 speaker-stand Adapter
Used to place a K&F SCENA 12 loudspeaker on a suitable speaker-stand.
12. Care and Maintenance

1. **Warning**

   Damage and wear to the speakers and accessories may considerably affect your personal safety.

   The K&F SCENA 12 system can exhibit signs of wear over the years, for example, from mechanical strain, transport damage, corrosion, or improper handling.

   Be sure to always perform a visual inspection of the speaker and all accessories before and after installation. In stationary installations, check the speaker and accessories for signs of wear at regular intervals.

   When performing those checks, particularly look for deformations, cracks, dents, damage to threads, and corrosion.

   If as a result of these checks any uncertainty should arise with regard to safety or defects are found, don’t use the speaker any longer. If the product is found to be faulty, return to KLING & FREITAG GmbH for inspection and repair as necessary.

   Inspection regulations may vary depending on application and country of use. Observe all applicable regulations; when in doubt, contact the local authorities.

   Many countries require regular inspection of mounting components and accessories. An additional annual inspection is typically required to be performed by a technical expert. Moreover, a legally certified or official authority must perform a detailed inspection every four years.

   Therefore, be sure to maintain an inspection log. Enter the values determined for each speaker and accessory during the periodic checks into this log. This way, relevant data are always at hand in case of inspection. The log should also document maintenance measures and inspection intervals and contain parts lists.

2. Operate the mode switch on the connector panel of the speaker at least once every six months to ensure its function.

3. The polyurea coating utilized by Kling & Freitag is shock-resistant and highly resilient. We recommend using protective coverings or transport cases to help avoid damaging the paint in case of continuous mobile use, etc.

4. To have the acoustic foam replaced, send the grille including the foam layer to Kling & Freitag GmbH. We will then replace the foam layer with a new one at a fixed charge and return your grille.
13. Transportation and Storage

The K&F SCENA 12 system offers two lateral handles for carrying. Never hold the speaker vertically on one handle only.

The speaker is too heavy for women or physically challenged persons and must not be carried by these persons.

The K&F SCENA 12 system is protected against the effects of unfavorable temporary weather conditions, etc.; despite, be sure to store, transport, and use the accessories in dry environments only. The K&F SCENA 12 is not designed for use in corrosive environments.

Make sure that the system is adequately ventilated during longer storage periods so any residual moisture can escape from the equipment.

In order to prevent damage, please make sure to avoid mechanical strains.

To protect the speaker from the above impacts, we recommend using the optional soft cover and suitable transport and storage cases.

14. Disposal

Please recycle the packaging material of the device.

14.1 Germany

Don’t dispose of waste electrical equipment through household waste.

Don’t deliver it to official recycling points either.

All KLING & FREITAG products are plain business-to-business (B2B) products. Therefore, KLING & FREITAG GmbH is exclusively responsible for disposing of all KLING & FREITAG waste equipment marked with a crossed-out garbage-can icon. Please call the below phone number when you have a KLING & FREITAG product (marked with the crossed-out garbage-can icon) for disposal. We will offer you a straightforward and professional disposal at no cost.

KLING & FREITAG equipment with no such icon was distributed before 24 March 2006; in that case, the owner is legally responsible for disposal. We will, however, gladly assist you by naming appropriate ways of disposal.

For further disposal information of KLING & FREITAG waste products, call +49 511 -96 99 7 -0

Explanation: The Electrical and Electronic Equipment and Appliances Act (ElektroG) is the German implementation of the European (EU) Waste Electrical and Electronic Equipment Directive (WEEE, 2002/96/EC).

Therefore, starting on 24 March 2006, KLING & FREITAG GmbH has marked all products subject to the WEEE that are distributed in Germany with an icon showing a crossed-out garbage can with a white bar below it. The icon indicates that the equipment was distributed on or after 24 March 2006 and must not be disposed of through household waste.

KLING & FREITAG GmbH is legally registered as a manufacturer with the German waste-equipment registration authority (EAR). The WEEE registration number is: DE64110372.

We substantiated towards the EAR that our products are for B2B trade only.

14.2 EU, Norway, Iceland, and Liechtenstein

Don’t dispose of waste electrical equipment through household waste.

Starting on 13 August 2005, KLING & FREITAG GmbH has marked all products subject to the WEEE directive that are distributed in any member state of the European Union (except Germany), Norway, Iceland, or Liechtenstein with an icon showing a crossed-out garbage can with a white bar below it.
This sign indicates that the disposal on domestic waste is prohibited and that the product has been put into circulation on 08/13/2005 at the earliest.

Unfortunately, the European WEEE directive was implemented in different national legislation in the EU member states, making it impossible to offer a consistent disposal solution throughout Europe.

The local distributor (sales partner) in the respective country is responsible for complying with the applicable legislation.

Contact your retailer or the local authorities for information on the regulations applicable in any EU member state (except Germany).

### 14.3 All Other Countries

Contact your retailer or the local authorities for information on the regulations applicable in any country not listed above.
INDEX
• Accessories................................................................................................................................... 23
• Care.............................................................................................................................................. 24
• Components...................................................................................................................................7
• Connection...................................................................................................................................18
• Connection diagrams.................................................................................................................. 16
• Connector panel............................................................................................................................7
• Dimensions...................................................................................................................................19
• Disposal........................................................................................................................................ 25
• Initial Operation..........................................................................................................................15
• InstallSound................................................................................................................................... 8
• Intended Use................................................................................................................................... 6
• Items Included................................................................................................................................ 7
• Measuring Diagrams....................................................................................................................20
• Plastic sliding blocks....................................................................................................................11
• Product Description.......................................................................................................................6
• ProRental........................................................................................................................................ 8
• Protecting the Speakers................................................................................................................10
• Reliability...................................................................................................................................... 10
• Safety Instructions........................................................................................................................ 9
• Safety notes for stands...................................................................................................................11
• Sample configuration....................................................................................................................17
• Speaker-stand..................................................................................................................................11
• Subwoofers................................................................................................................................... 18
• system amp..................................................................................................................................... 8
• SystemRack..................................................................................................................................... 8
• System requirements..................................................................................................................... 8
• Technical Specifications...............................................................................................................22
• Transportation............................................................................................................................... 25
• Wiring...........................................................................................................................................15

15. Notice