Zenty | Professional A/V Solution Provider

User Manual [V1.0]



Mini Digital 40W Amplifier

ZT-199 | ZT-AP40

ZENTY ®

9807 EMILY LANE

STAFFORD, TX 77477

(844) 200-1945

SUPPORT@ZENTY.COM

HIGH DEFINITION MULTIMEDIA INTERFACE

SAFETY PRECAUTIONS

To ensure the best from the product, please read all instructions carefully before using the device. Save this manual for further reference.

- Unpack the equipment carefully and save the original box and packing material for possible future shipment
- Follow basic safety precautions to reduce the risk of fire, electrical shock and injury to persons.
- Do not dismantle the housing or modify the module. It may result in electrical shock or burn.
- Using supplies or parts not meeting the products' specifications may cause damage, deterioration or malfunction.
- Refer all servicing to qualified service personnel.
- To prevent fire or shock hazard, do not expose the unit to rain, moisture or install this product near water.
- Do not put any heavy items on the extension cable in case of extrusion.
- Do not remove the housing of the device as opening or removing housing may expose you to dangerous voltage or other hazards.
- Install the device in a place with fine ventilation to avoid damage caused by overheat.
- Keep the module away from liquids.
- Spillage into the housing may result in fire, electrical shock, or equipment damage. If an object or liquid falls or spills on to the housing, unplug the module immediately.
- Do not twist or pull by force ends of the optical cable. It can cause malfunction.
- Do not use liquid or aerosol cleaners to clean this unit. Always unplug the power to the device before cleaning.
- Unplug the power cord when left unused for a long period of time.
- Information on disposal for scrapped devices: do not burn or mix with general household waste, please treat them as normal electrical wastes.

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1. Introduction

1.1 Introduction to ZT-AP40

ZT-AP40 is a compact-size digital amplifier (Class-D) with 3 inputs (2 line in and 1 balanced MIC). It is integrated with powerful functions, including bridge connection, dual-mono, EQ control, microphone mixer etc.

It has a good application in different places, including classroom, small meeting room, lecture hall, bar, pub etc.

1.2 Features

- 2x20Watt@4Ohm as the default amplifier output.
- Bridge connection function. User can switch the ZT-AP40 to be 1x40Watt@8Ohm by bridge connection.
- Two stereo audio inputs, switchable by button, IR remote & RS232.
- Volume/Bass/Treble controllable by buttons IR remote & RS232.
- MIC port can support balance/unbalance signal, suppress the external noise effectively.
- Line audio output at 3.5mm jack, with volume controllable.
- Dual-mono function. User can sum up the stereo audio to two times mono audio.
- MIC mixer function. The microphone will be mixed to the line audio output and be controlled separately.
- MIC input supports 48V phantom power, dynamic MIC and wireless MIC.
- Auto noise gate. It keeps detecting the audio and MIC input, will mute the output when there is no input.
- Ultra-low inrush current, no need for power sequencing. This allows multiple ZT-AP40 to be powered on simultaneously without overloading power circuits.
- Convection cooler, fan is not needed.
- Antistatic case design: providing good protection for long-term and stable performance.

1.3 Packaging List

- (1) x ZT-AP40 (The mounting ears and ZT-AP40 are as a whole.)

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- (2) x Pluggable Terminal Blocks
- (1) x RS232 Cable
- (1) x Power Adapter
- (1) x Power Cord
- (4) x Plastic Cushions

Notes:

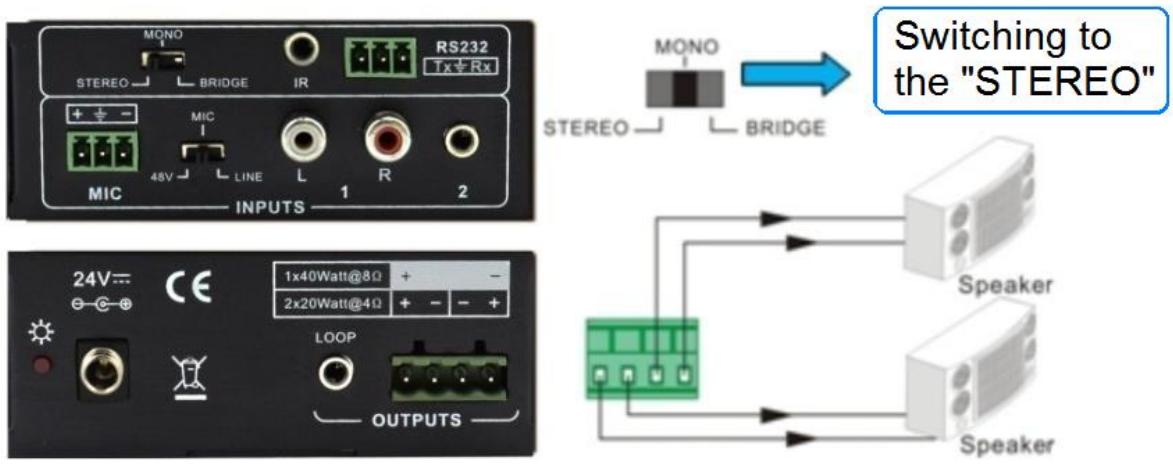
- The IR remote and its battery are offered for charge separately.
- The IR receiver is also offered for charge.
- Please confirm if the product and the accessories are all included, if not, please contact with the dealers.

2. System Connection Introduction

2.1 Audio Output

2.1.1 Default Output: 2x20Watt @ 40Ohm

The default output of amplifier is 2x20Watt@40hm, so user can connect the amplifier output in the regular way. As the picture below

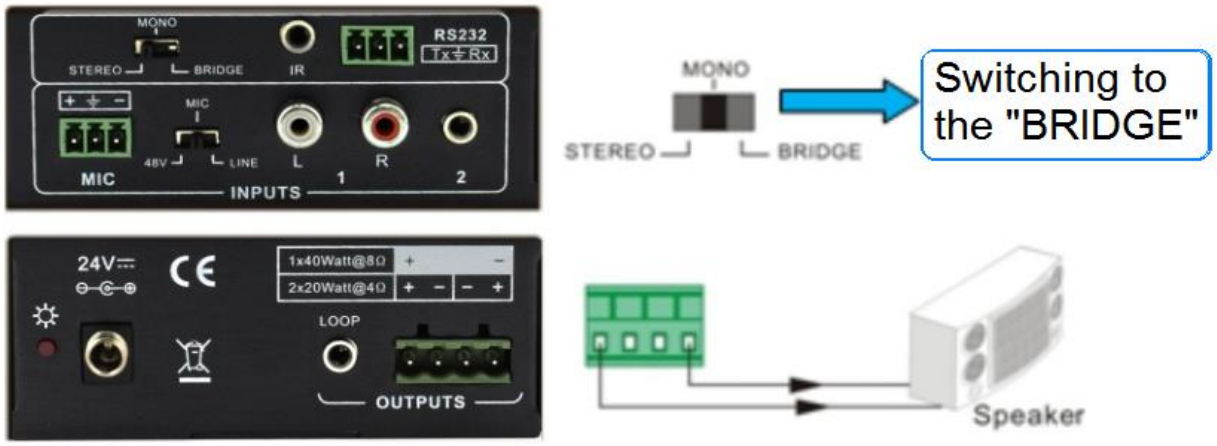


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2.1.2 Bridge Connection: 1x40Watt @ 8Ohm

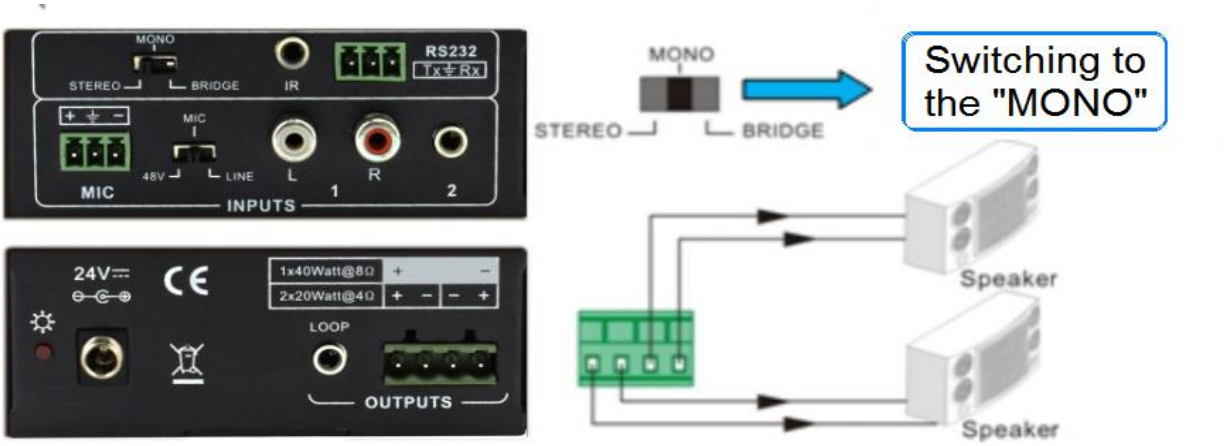
The ZT-AP40 has the bridge connection, to double the output power at 1x40Watt@8Ohm. It will sum up the input left channel and input right channel to be mono output, and the power is up to 40Watt.

The bridge connection is:



2.1.3 Dual-mono Output

The ZT-AP40 also has the function of double-mono output. It can sum up the left and right channel, to be the mono audio output. In this way, the both of the outputs are showing the same mono audio. The connection is:



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2.2 Microphone Input

The microphone input of ZT-AP40 has three modes, and different modes use different connections, as the picture below:



2.2.1 48V Phantom Power Input

When the switch turns to “48V”, the MIC input will provide a 48V phantom power. This is usually used for power supply for condenser microphone, Connection is:

“+” connects to positive, “-” connects to negative and “⏚” to ground.

Note: In this mode, only condenser microphone can be connected with.

2.2.2 MIC Input

When the switch turns to “MIC”, the microphone input is used for connecting with dynamic microphone. There are two different connections:

1) Unbalanced connection:

“⏚” connects to ground, and “-” connects to signal.

“⏚” connects to ground, and “+” connects to signal.

2) Balanced connection: “+” connects to positive, “-” connects to negative and “⏚” connects to ground.

2.2.3 LINE Input

When the switch turns to “LINE”, the microphone input is used for connecting with normal audio or wireless microphone output. There are two different connections:

1) Unbalanced connection:

“⏚” connects to ground, and “-” connects to signal.

“⏚” connects to ground, and “+” connects to signal.

2) Balanced connection: “+” connects to positive, “-” connects to negative and “⏚” connects to ground.

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3. Operation of Control Panel and IR Remote

3.1 Operation of Control Panel

The buttons provide the control of volume/EQ control and switching. The following content introduces audio switching and EQ control in detail.

3.1.1 Audio Switching

There are two switchable stereo audio inputs, one 2xRCA input, and one 3.5mm jack input, switchable through the buttons as below:

3.1.2 Volume/EQ Controlling

The line volume and MIC volume can be controlled by the buttons.

The MIC Volume/LINE volume/LINE bass/LINE treble will be selected by the buttons, and controlled up/down/mute by the function buttons. Please check the picture below:



For example, to turn up the line volume, you should select the "LINE" first, and then press the button "▲".

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3.2 Usage of IR Remote

Audio Inputs

1: RCA dual-mono audio inputs

2: 3.5mm jack

Use to transmit the infrared signal send by the IR remote.

Audio Controlling Modes

MIC: turn up/down the microphone volume.

LINE: turn up/down the line volume.

BASS: bass tuning

TREBLE: treble of line volume.



Mute Mode:

MIC: Mute the microphone volume.

LINE: Mute the line volume.

SPEAKER: Unmute

IR receiver head, works in conjunction with the IR remote. Please point the IR remote at the IR receiver when use, to avoid getting out of control as there is no signal detected.



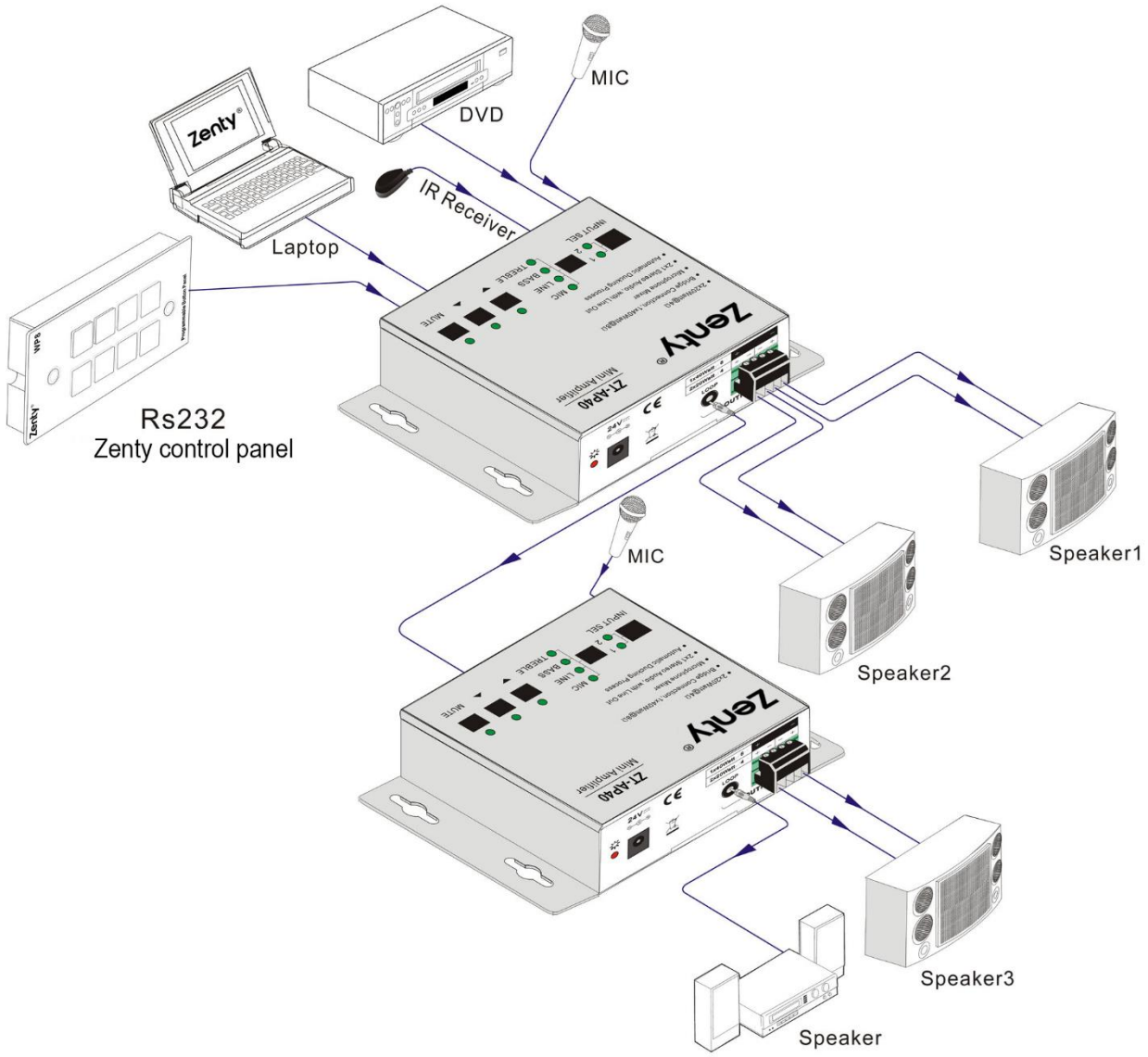
3.5mm jack

Insert it into the specialized IR port (3.5mm), on the ZT-AP40

Notice: The IR remote, the IR receiver, and the battery of the IR remote are all offered for charge.

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4. System Diagram



5. Communication Protocol and Command Codes

Communication Protocol: RS232 Communication Protocol

Baud rate: 9600 Data bit: 8 Stop bit: 1 Parity bit: none

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Command	Function Description	Feedback Code
1A1.	Switching the audio to input 1	A: 1 -> 1
2A1.	Switching the audio to input 2	A: 2 -> 1
0A0.	Mute Audio of MIC and Line out	Mute
1A0.	Mute audio of MIC	Mute MIC
2A0.	Mute audio of line out	Mute LIN
0A1.	Unmute Audio	Unmute
3A0.	Switch on Noise Gate	Gate On
4A0.	Switch off Noise Gate	Gate Off
600%	Checking the working status	A: 1 -> 1 Volume: 30 Bass: 00 Treble: 00
601%	MIC volume up	Volume of MIC: 51
602%	MIC volume down	Volume of MIC: 51
603%	Line volume up	Volume of LINE: 51
604%	Line volume down	Volume of LINE: 51
605%	Bass level up	Bass of LINE: 04
606%	Bass level down	Bass of LINE: 04
607%	Treble level up	Treble of LINE: 04
608%	Treble level down	Treble of LINE: 04
609%	Initialization, back to the default setting	Init OK
5[x][x]%	Preset MIC volume, [xx] arranges from [00] to [60]. 61 degrees in total.	Volume of MIC: 50
7[x][x]%	Preset line volume, [xx] arranges from [00] to [60]. 61 degrees in total.	Volume of LINE: 50

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8[x][x]%	Preset the bass level, [xx] arranges from [00] to [08]. 9 degrees in total.	Bass of LINE: 04
9[x][x]%	Preset the treble level, [xx] arranges from [00] to [08]. 9 degrees in total.	Treble of LINE: 04

Notice:

1: The letter inside bracket [ ] is the variable code, which is changeable.

2: The bracket [ ] is not included to the RS232 commands.

3: Any dot "." after the letters is part of the commands.

Example 1:

Switching the input 2 to the line out, RS232 command is: [2A1.]

Example 2:

Turning up the volume of line audio, RS232 command is: [603%]

Example 3:

Preset the MIC volume to "21" degree, RS232 command is: [521%]

Example 4:

Checking the working status of ZT-AP40, RS232 command is: [600%]

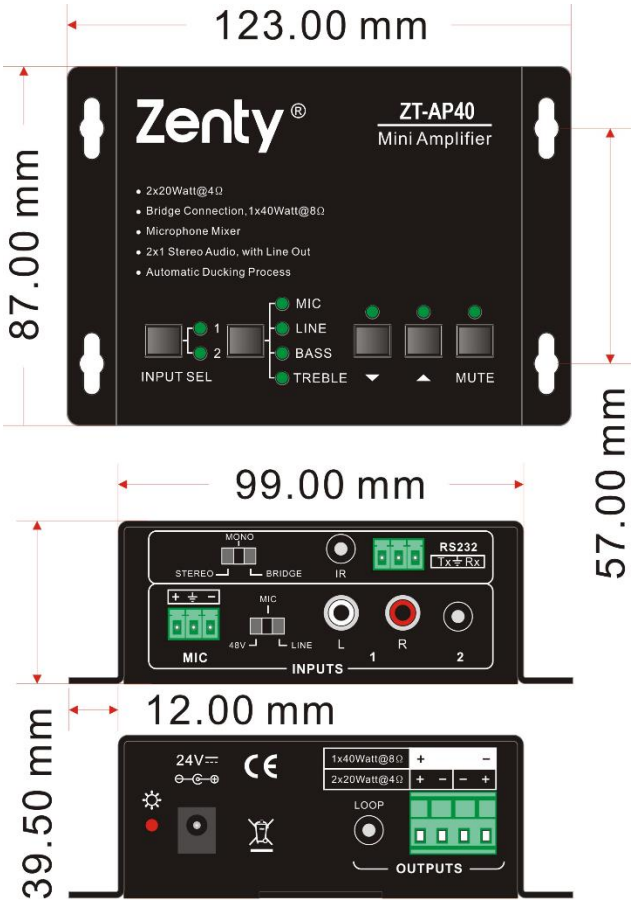
6. Specifications

Audio Input		Audio Output	
Input	2 stereo audio, 1 MIC	Output	1 amplifier, 1 stereo audio
Input Connector	2 RCA 1 3.5mm jack 1 pluggable terminal block (3P,3.81mm),	Output Connector	1 3.5mm jack 1 pluggable terminal block (4P, 5.08mm)
Input Impedance	>10KΩ	Output Impedance	50Ω/stereo, 4~8Ω/Amplifier
Audio General			

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Frequency Response	20Hz ~ 20KHz	CMRR	>70dB@20Hz~20 KHz
SNR	80dB at maximum output	Bandwidth	20Hz ~ 25KHz
Stereo Channel Separation	>75dB@20Hz to 20KHz	THD + Noise	1%@1KHz, 0.3%@20KHz at nominal level
Voltage Gain	32dB	Power Output	2x20 Watts (4 Ohms)
Control Function			
RS232 Control	3-hole phoenix connector	Panel Control	Optional button control
IR Remote	Optional IR remote		

7. Panel Drawing



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8. Maintenance

Clean this unit with a soft, dry cloth. Never use alcohol, paint thinner, or benzine to clean.

9. Warranty

If your product does not work properly because of a defect in materials of workmanship, our company (referred to as “the warrantor”) will, for the length of the period indicated as below, “Parts and Labor (5) Years”, which starts with the date of original purchase (“Limited Warranty period”), at its option either (a) repair your product with new or refurbished parts, or (b) replace it with a new or a refurbished product. The decision to repair or replace will be made by the warrantor.

During the “Labor” limited warranty period, there will be no charge for labor. During the “Parts” warranty period, there will be no charge for parts. You must mail-in your product during the warranty period. This Limited Warranty is extended only to the original purchaser and only covers products purchased as new. A purchase receipt or other proof of original purchase date is required for Limited Warranty service.

10. Mail-In Service

When shipping the unit, carefully pack and send it prepaid, adequately insured, and preferably in the original carton. Include a letter detailing the complaint and provide a day time phone and/or email address where you can be reached.

11. Limited Warranty Limits and Exclusions

This Limited Warranty ONLY COVERS failures due to defects in material or workmanship, and DOES NOT COVER normal wear and tear or cosmetic damage. The Limited Warranty ALSO DOES NOT COVER damages which occurred in shipment, or failures which are caused by products not supplied by warrantor, or failures which result from accidents, misuse, abuse, neglect, mishandling, misapplication, alteration, faulty installation, set-up adjustments, mis-adjustment of consumer controls, improper maintenance, power line surge, lightning damage, modification, or service by anyone other than a Factory Service center or other Authorized Servicer, or damage that is attributed to acts of God.

THERE ARE NO EXPRESS WARRANTIES EXCEPT AS LISTED UNDER “LIMITED WARRANTY COVERAGE”. THE WARRANTOR IS NOT LIABLE FOR INCIDENTAL OR CONSEQUENTAIL DAMAGES RESULTING FROM THE USE OF THIS PRODUCT, OR ARISING OUT OF ANY BREACH OF THIS WARRANTY. (As examples, this excludes damages for lost time, cost of having someone remove or re-install an installed unit if applicable, travel to and from the service, loss of or damage to media or images, data or other recorded content. The items listed are not exclusive, but are for illustration only.) PARTS AND SERVICE, WHICH ARE NOT COVERED BY THIS LIMITED WARRANTY, ARE YOUR RESPONSIBILITY.

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WWW.ZENTY.COM
9807 EMILY LANE
STAFFORD, TX 77477

(844) 200-1945
SUPPORT@ZENTY.COM
SALES@ZENTY.COM