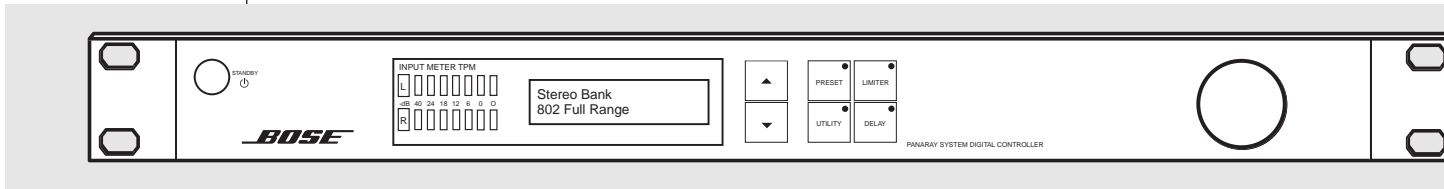


PANARAY® System Digital Controller

Installation guide



BOSE®

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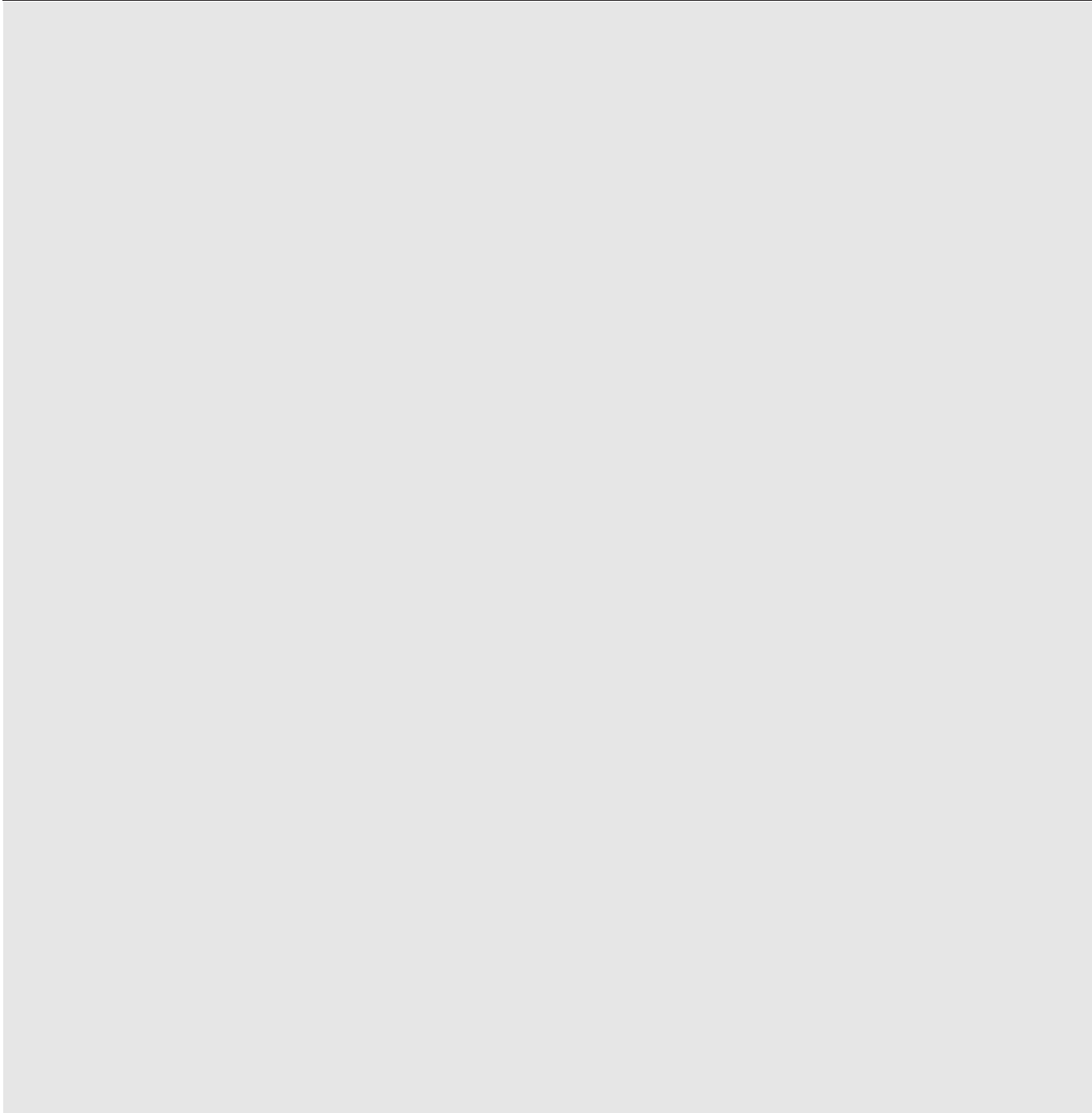


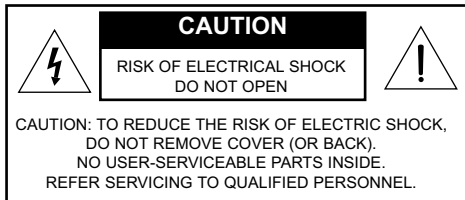
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Important Safety Instructions

Warning (English)

To reduce the risk of fire or electric shock, do not expose the unit to rain or moisture.



These CAUTION marks may be located on the back of the PANARAY® System Digital Controller.



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated dangerous voltage within the system enclosure that may be of sufficient magnitude to constitute a risk of electric shock.



The exclamation point within an equilateral triangle, as marked on the system, is intended to alert the user to the presence of important operating and maintenance instructions in this owner's guide.

Important Safety Instructions

1. Read and follow these instructions.
2. Heed all warnings—on the product and in the owner's guide.
3. Do not use this apparatus near water or moisture.
4. Clean only with a dry cloth.
5. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions. To ensure reliable operation of the product and to protect it from overheating, put the product in a position and location that will not interfere with its proper ventilation.
6. Do not install near any heat sources, such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
7. Do not defeat the safety purpose of the grounding-type plug. A grounding-type plug has two blades and a third grounding prong. The third prong is provided for your safety. If the provided plug does not fit in your outlet, consult an electrician for replacement of the outlet.
8. Protect the power cord from being walked on or pinched, particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
9. Only use attachments/accessories specified by the manufacturer.
10. Use only with a cart, stand, tripod, bracket or table specified by the manufacturer or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
11. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way: such as power supply cord or plug is damaged; liquid has been spilled or objects have fallen into the apparatus; the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped—Do not attempt to service this product yourself. Opening or removing covers may expose you to dangerous voltages or other hazards. Please call Bose® to be referred to an authorized service center near you.
12. To prevent risk of fire or electric shock, avoid overloading wall outlets, extension cords, or integral convenience receptacles.
13. Do not let objects or liquids enter the product—as they may touch dangerous voltage points or short-out parts that could result in a fire or electric shock.
14. See product enclosure back for safety related markings.
15. No naked flame sources, such as lighted candles, should be placed on the apparatus.
16. Product must be rack-mounted and installed in accordance with local building codes.
17. Product is not intended for marine applications.

Advarsel (Dansk)

Enheden må ikke udsættes for regn eller fugtighed af hensyn til risikoen for brand eller elektrisk stød.



Disse FORSIGTIGHEDSMÆRKER er anbragt på de PANARAY® System Digital Controller.



Symbolet med et lyn med pilespids i en ligesidet trekant skal gøre brugeren opmærksom på tilstedeværelsen af en ikke-isoleret farlig spænding i det lukkede system, der kan være tilstrækkelig kraftig til at give elektrisk stød.



Udråbstegnet i en ligesidet trekant, som systemet er mærket med, er beregnet til at advare brugeren om vigtige instruktioner til betjening og vedligeholdelse i denne betjeningsvejledning.

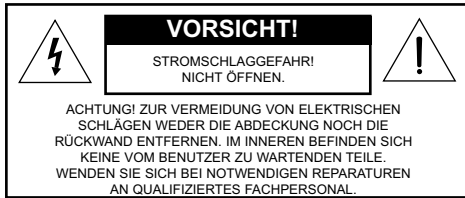
Vigtige sikkerhedsinstruktioner

1. Læs og følg disse instruktioner.
2. Læg mærke til alle advarsler - på produktet og i betjeningsvejledningen.
3. Anvend ikke dette apparat i nærheden af vand eller fugtighed.
4. Rengør kun med en tør klud.
5. Undgå at blokere ventilationsåbningerne. Installér i overensstemmelse med producentens instruktioner - Til sikring af pålidelig funktion og beskyttelse mod overophedning skal produktet anbringes i en position og på et sted, der ikke hindrer korrekt ventilation.
6. Installér ikke i nærheden af varmekilder, såsom radiatorer, varmeovne, komfurer eller andre apparater (herunder forstærkere) der frembringer varme.
7. Omgå ikke sikkerheden ved brug af et ikke jordforbundet stik. Et jordforbundet stik har to ben og et tredje jordben. Det tredje ben er der af hensyn til din sikkerhed. Hvis det medfølgende stik ikke passer i stikkontakten, skal du kontakte en elektriker for at få stikkontakten udskiftet.
8. Beskyt netledningen mod at blive trådt på eller klemt, specielt ved stik, stikkontakter og der, hvor den kommer ud af apparatet.
9. Brug kun tilslutningsudstyr/tilbehør, der er angivet af producenten.
10. Brug det kun sammen med en vogn, eller bord, der er angivet af producenten eller solgt sammen med apparatet. Når der anvendes en vogn, skal der udvises forsigtighed ved kørsel med vogn/apparat, så det ikke vælter.
11. Overlad al serviceringen til kvalificeret servicepersonale. Service er påkrævet, hvis apparatet på nogen måde er blevet beskadiget: f.eks. hvis netledningen eller stikket er blevet beskadiget, der er blevet spildt væske eller faldet genstande ned i apparatet, apparatet er blevet udsat for regn eller fugt, hvis det ikke fungerer normalt, eller hvis det er blevet tabt - forsøg ikke at reparere apparatet selv. Åbning eller fjernelse af låget kan udsætte dig for farlige spændinger eller andre farer. Kontakt Bose® for at få oplysninger om det nærmeste servicecenter.
12. Undgå at overbelaste stikkontakter, forlængerledninger eller indbyggede stik af hensyn til risikoen for brand eller elektrisk stød.
13. Undgå at genstande eller væsker kommer ind i produktet, da de kan berøre steder med farlige spændinger eller kortslutte dele, hvilket kan resultere i brand eller elektrisk stød.
14. Se på bagklædningen angående mærkater, der er relevante for sikkerheden.
15. Der må ikke anbringes åben ild såsom tændte lys på apparatet.
16. Produktet skal monteres i rack og installeres i henhold til lokale bygningsregler.
17. Produktet er ikke beregnet til marine programmer.

Important Safety Instructions

Vorsicht! (Deutsch)

Dieses Gerät darf weder Regen noch Feuchtigkeit ausgesetzt werden, damit Brände durch Kurzschluss oder elektrische Schläge verhindert werden.



Diese Sicherheitshinweise befinden sich auf der Rückseite des PANARAY® System Digital-Controller.



Das Blitzsymbol mit Pfeilspitze in einem gleichseitigen Dreieck soll den Benutzer auf das Vorhandensein einer nichtisolierten gefährlichen elektrischen Spannung innerhalb des Systemgehäuses hinweisen, die so hoch ist, dass eine Gefährdung durch elektrische Schläge besteht.



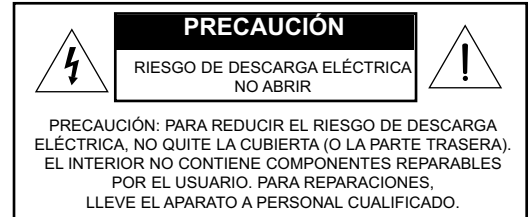
Das Ausrufungszeichen in einem gleichseitigen Dreieck, wie es auf dem System angebracht ist, soll den Benutzer auf wichtige Bedienungs- und Wartungsanweisungen in dieser Bedienungsanleitung aufmerksam machen.

Wichtige Sicherheitshinweise

1. Lesen Sie die folgenden Sicherheitshinweise noch vor der Inbetriebnahme des Geräts aufmerksam durch.
2. Beachten Sie alle Warn- und Sicherheitshinweise am Gerät und in dieser Bedienungsanleitung.
3. Verwenden Sie dieses Gerät nicht in der Nähe von Wasser oder Feuchtigkeit.
4. Reinigen Sie das Gerät nur mit einem sauberen, trockenen Tuch.
4. Achten Sie darauf, dass die Lüftungsöffnungen nicht blockiert sind. Stellen Sie das Gerät gemäß den Herstelleranweisungen auf. Stellen Sie es nur an einem Ort auf, an dem eine gute Luftzirkulation gewährleistet ist, um den zuverlässigen Betrieb des Geräts sicherzustellen und es gegen Überhitzung zu schützen.
6. Stellen Sie das Gerät nicht in der Nähe von Wärmequellen auf, wie Heizkörpern, Wärmespeichern, Öfen oder anderen Geräten (auch Verstärkern), die Wärme erzeugen.
7. Beeinträchtigen Sie in keiner Weise die Schutzfunktion des Schutzkontaktsteckers. Ein Schutzkontaktstecker hat zwei Stromkontakte und einen dritten Erdungskontakt. Dieser Erdungskontakt dient Ihrer Sicherheit. Falls der mitgelieferte Schutzkontaktstecker nicht in Ihre Steckdose passt, wenden Sie sich an einen qualifizierten Elektriker, um die Steckdose auszutauschen.
8. Verlegen Sie das Netzkabel so, dass es keine Stolpergefahr darstellt und nicht beschädigt werden kann - insbesondere im Bereich von Steckern und Steckdosen und dort, wo das Netzkabel aus dem Gerät herausgeführt wird.
9. Verwenden Sie nur Zubehör-/Anbauteile, die vom Hersteller zugelassen sind.
10. Verwenden Sie für das Gerät nur Rollwagen, Ständer, Dreibeine, Halterungen oder Tische, die vom Hersteller zugelassen sind oder zusammen mit dem Gerät verkauft werden. Falls Sie einen Rollwagen verwenden, dürfen Sie die Einheit Gerät/Rollwagen nur mit Vorsicht bewegen, damit Verletzungen beim möglichen Umkippen ausgeschlossen sind.
11. Wenden Sie sich bei allen Reparatur- und Wartungsarbeiten nur an qualifiziertes Kundendienstpersonal. Eine Reparatur ist erforderlich, wenn das Gerät in irgendeiner Weise beschädigt wurde: Beispielsweise falls das Netzkabel oder der Netzstecker beschädigt ist, Flüssigkeit oder Fremdkörper in das Gerät gelangt sind oder das Gerät Regen bzw. Feuchtigkeit ausgesetzt war, nicht einwandfrei arbeitet oder heruntergefallen ist. Versuchen Sie in solchen Fällen keinesfalls, das Gerät selbst zu reparieren. Öffnen oder entfernen Sie unter keinen Umständen Gehäuseabdeckungen, da Sie andernfalls mit gefährlichen elektrischen Spannungen in Berührung kommen oder anderen Gefahren ausgesetzt sein könnten. Wenden Sie sich telefonisch an Bose®, um die Anschrift eines autorisierten Kundendienstzentrums in Ihrer Nähe zu erfragen.
12. Vermeiden Sie Gefahren durch Brände oder elektrische Schläge, indem Sie Steckdosen, Verlängerungskabel und integrierte Gerätesteckdosen nicht überlasten.
13. Lassen Sie keine Flüssigkeiten oder Fremdkörper in das Gerät gelangen - sie können unter gefährlicher elektrischer Spannung gesetzt werden oder Bauteile kurzschließen und folglich Brände und elektrische Schläge auslösen.
14. Beachten Sie die Sicherheitshinweise auf der Geräterückseite.
15. Stellen Sie keine offenen Flammen, wie brennende Kerzen, auf das Gerät.
16. Rack-Einbau und Installation des Produkts müssen in Übereinstimmung mit den Ort geltenden Bauordnungen erfolgen.
17. Das Produkt ist nicht für den Einsatz in Wassernähe bestimmt.

Advertencia (Español)

Con el fin de reducir el riesgo de descarga eléctrica, no exponga la unidad a lluvia o humedad.



Estas marcas de PRECAUCIÓN podrían estar situadas en la parte trasera del Controlador Digital para Sistemas PANARAY®



El símbolo de un relámpago con una flecha, dentro de un triángulo equilátero, avisa al usuario que dentro de la caja del sistema puede haber voltaje de una magnitud suficiente para constituir un riesgo de descarga eléctrica.



El signo de exclamación dentro de un triángulo equilátero, según las marcas en el sistema, sirven para avisar al usuario de que existen instrucciones de operación y mantenimiento importantes en esta guía del usuario.

Importantes instrucciones de seguridad

1. Lea y siga estas instrucciones.
2. Respete todos los avisos - del producto y de la guía del usuario.
3. No utilice este aparato cerca del agua o humedad.
4. Limpie sólo con un trapo seco.
5. No bloquee las aperturas de ventilación. Instale según las instrucciones del fabricante - Para garantizar que el producto funciona de manera fiable y con el fin de evitar que se sobrecaliente, coloque el producto en una posición y ubicación que no interfiera con su ventilación adecuada.
6. No lo instale cerca de fuentes de calor, tales como radiadores, salidas de aire caliente, hornos o demás aparatos (inclusive amplificadores), que generen calor.
7. No elimine el dispositivo de seguridad ofrecido por el enchufe con toma a tierra. Los enchufes con toma a tierra tienen dos patas para la corriente, y una tercera para la toma de tierra. La tercera pata está instalada a efectos de seguridad. Si el enchufe suministrado no encaja en sus tomas de electricidad, consulte con un electricista para sustituirlo.
8. Proteja el cable eléctrico de forma que nadie lo pise o quede apretado, particularmente cerca de los enchufes, receptáculos de tomas múltiples, y en el lugar en el que sale del aparato.
9. Utilice sólo conexiones y accesorios suministrados por el fabricante.
10. Utilice sólo con un carrito, soporte, tripode, abrazadera o mesa suministrados por el fabricante o vendidos junto al aparato. Cuando se utilice un carrito, tenga cuidado al mover la combinación de carrito/aparato para evitar lesiones en caso de que se caiga.
11. Toda reparación debe ser realizada por personal cualificado. Lleve el aparato a reparar si éste sufre cualquier daño, como por ejemplo: si el cable eléctrico o enchufe están dañados, se ha derramado líquido o han caído objetos dentro del aparato; el aparato ha sido expuesto a la lluvia o a la humedad, no funciona normalmente, o ha caído - No intente reparar este producto usted mismo. Abrir o sacar las tapas le expondrá a voltajes peligrosos o a otros peligros. Por favor llame a Bose® para que le indiquen un centro de reparación autorizado en su zona.
12. Para impedir el riesgo de descarga eléctrica, evite la sobrecarga de los enchufes, cables de extensión o receptáculos de varias tomas.
13. No deje que caigan objetos o líquidos dentro del aparato - ya que podrían tocar puntos en los que existen niveles de voltaje peligrosos, o causar cortocircuitos que podrían causar incendios o descargas eléctricas.
14. Vea la parte posterior de la caja para indicaciones de seguridad.
15. No coloque en el aparato ninguna llama viva, como por ejemplo una vela.
16. El producto se debe montar en bastidor y debe instalarse según los códigos de montaje locales.
17. El producto no está pensado para aplicaciones marinas.

Important Safety Instructions

Avertissement (Français)

Afin de réduire le risque d'incendie ou de choc électrique, ne pas exposer le système à la pluie ou à l'humidité.



Ces signalisations d'AVERTISSEMENT sont peut-être situées à l'arrière del PANARAY® System Digital Controller



L'éclair terminé par une flèche et contenu dans un triangle équilatéral est prévu pour attirer l'attention de l'utilisateur sur la présence à l'intérieur du produit, de tensions dangereuses appliquées à certains éléments non protégés. Ces tensions sont d'une magnitude suffisamment importante pour constituer un risque de choc électrique ou d'électrocution.



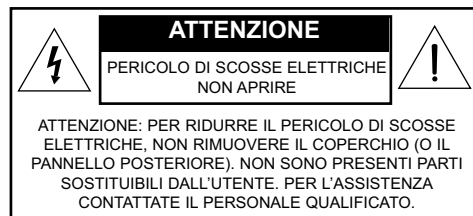
Le point d'exclamation contenu dans un triangle équilatéral est prévu pour avertir l'utilisateur sur la présence d'instructions importantes de fonctionnement ou de maintenance (sur le produit et dans ce manuel).

Consignes de sécurité importantes

1. Lisez et appliquez les instructions données dans ce document.
2. Soyez attentif à tous les avertissements—Ceux figurant sur l'appareil et ceux délivrés dans ce guide.
3. N'utilisez pas cet appareil à proximité d'eau ou d'humidité.
4. Pour le nettoyage, utilisez un chiffon sec.
5. N'obstruez aucun des orifices de ventilation. Choisissez un emplacement conforme aux instructions du fabricant—Pour assurer le bon fonctionnement de l'appareil et le protéger contre tout risque de surchauffe, placez celui-ci à un endroit et dans une position qui ne compromette pas sa ventilation.
6. Ne posez pas l'appareil à proximité de sources de chaleur telles que : radiateurs, bouches de chauffage pulsé, poêle ou autres appareils (amplificateurs y compris) dégageant de la chaleur.
7. Pour votre sécurité, ne débranchez pas la liaison de terre sur la prise secteur. Cette prise comporte deux broches mâles et une broche femelle de mise à la terre. Cette dernière sert à vous protéger. Si la fiche équipé votre appareil ne correspond pas à votre prise secteur murale, faites appel à un électricien qualifié pour qu'il effectue son remplacement.
8. Evitez que le cordon d'alimentation ne soit piétiné ou pincé, en particulier au niveau de la prise, d'un bloc multiprises ou de sa sortie de l'appareil.
9. N'utilisez que les accessoires préconisés par le fabricant.
10. N'utilisez qu'un rack, un meuble, un support ou une table préconisé par le fabricant ou vendu pour être utilisé avec l'appareil. Si l'appareil est placé à l'intérieur d'un rack, déplacez celui-ci avec prudence afin d'éviter qu'il n'occasionne des blessures en se renversant.
11. Faites effectuer tous les travaux d'entretien ou de réparation par un personnel qualifié. Une maintenance est nécessaire dès que l'appareil est endommagé de manière quelconque, notamment lorsque le cordon d'alimentation est en mauvais état, qu'un liquide a été renversé ou qu'un objet est tombé à l'intérieur du produit. Il en va de même si l'équipement a été exposé à la pluie ou à l'humidité, qu'il est tombé ou qu'il ne fonctionne pas normalement—N'essayez pas de réparer cet appareil vous-même. En ouvrant ou en retirant un capot, vous risquez d'entrer en contact avec des tensions dangereuses ou de vous retrouver exposé à d'autres dangers. Appelez la société Bose® afin de connaître la station technique agréée la plus proche de chez vous.
12. Pour éviter tout risque d'incendie ou de choc électrique, ne surchargez pas les prises murales, les prolongateurs ou les blocs multiprises.
13. Evitez que des objets ou des liquides ne pénètrent dans l'appareil. Ils pourraient entrer en contact avec des éléments alimentés par des tensions dangereuses ou créer des courts-circuits pouvant provoquer un incendie ou une électrocution.
14. Reportez-vous aux avertissements relatifs à la sécurité, apposés à l'arrière du châs<None><None>sis.
15. Ne placez aucune flamme nue, telle qu'une bougie, sur l'appareil.
16. L'appareil doit être monté sur rack et installé conformément aux règlements locaux du bâtiment.
17. L'appareil n'est pas destiné à être utilisé sur un bateau.

Avvertenza (Italiano)

Per ridurre il pericolo di incendi o scosse elettriche, non esporre l'apparecchio alla pioggia o all'umidità.



I seguenti simboli di AVVERTENZA sono apposti sul pannello posteriore del PANARAY® System Digital Controller.



Il simbolo del fulmine all'interno di un triangolo equilatero ha lo scopo di avvertire gli utenti della presenza di tensione pericolosa non isolata all'interno dell'apparecchio, il cui livello è tale da costituire un potenziale rischio di scossa elettrica.



Il simbolo del punto esclamativo all'interno del triangolo equilatero, riportato sull'apparecchio, ha lo scopo di informare gli utenti della presenza di importanti istruzioni di funzionamento e manutenzione nella documentazione fornita con il prodotto.

Importanti norme di sicurezza

1. Leggete attentamente le istruzioni riportate di seguito.
2. Prestate attenzione alle avvertenze riportate sull'apparecchio e nel manuale di istruzioni.
3. Non utilizzate questo apparecchio vicino a fonti di umidità o acqua.
4. Utilizzate esclusivamente un panno asciutto per pulire l'apparecchio.
5. Non ostruite le aperture di ventilazione. Installate l'apparecchio conformemente a quanto indicato nelle istruzioni fornite dal produttore. Al fine di garantire il corretto funzionamento del prodotto e di proteggerlo da un riscaldamento eccessivo, collocate l'apparecchio in una posizione tale da non ostacolare la corretta aerazione.
6. Non installate l'apparecchio vicino a fonti di calore, quali radiatori, stufe o altri apparati (compresi gli amplificatori) che generano calore.
7. Non manomettete la spina dotata di massa (Shuko), progettata per la vostra sicurezza. Una spina Shuko è composta da due terminali e da un terzo terminale a forza per la massa aggiunto per garantire un più elevato livello di sicurezza. Se la spina fornita in dotazione non è adatta alle vostre prese a muro, contattate un tecnico per sostituire le prese.
8. Collocate il cavo di alimentazione in modo da evitare che venga calpestato o piegato, in particolare in corrispondenza delle spine, delle prese multiple e dei punti dove questo esce dall'apparecchio.
9. Utilizzate esclusivamente gli accessori specificati dal produttore.
10. Utilizzate esclusivamente con supporti mobili, piedistalli, staffe o ripiani specificati dal produttore o forniti in dotazione con l'apparecchio. Quando utilizzate un supporto mobile, prestate attenzione durante gli spostamenti dell'insieme carrello/apparecchio per evitare danni fisici causati da un possibile ribaltamento.
11. Per le riparazioni rivolgetevi al personale di assistenza qualificato. Contattate il servizio di assistenza nel caso l'apparecchio presenti danni di qualsiasi tipo, ad esempio al cavo di alimentazione o alla spina oppure dovuti alla penetrazione di liquido o di altro materiale all'interno dell'apparecchio, all'esposizione dell'apparecchio alla pioggia o all'umidità, a malfunzionamenti o, infine, a caduta. Non tentate di riparare da soli il prodotto. L'apertura o la rimozione del coperchio potrebbe esporre l'utente a tensioni pericolose o ad ulteriori rischi. Vi suggeriamo di contattare la Bose® per informazioni relative al centro di assistenza autorizzato più vicino.
12. Per prevenire il pericolo di incendi o scosse elettriche, evitate il sovraccarico delle prese a muro, delle prolunghe o delle prese multiple di corrente.
13. Prestate attenzione che del liquido o altro materiale non penetri all'interno del prodotto poiché potrebbe venire a contatto con parti sotto tensione o soggette a cortocircuito con conseguente possibilità di incendi o di scosse elettriche.
14. I marchi delle certificazioni di sicurezza sono apposti sul pannello posteriore del prodotto.
15. Non avvicinate all'apparecchio alcun tipo di fiamma, ad esempio un candeliere acceso.
16. Il prodotto deve essere montato in rack e installato in linea con le disposizioni vigenti in materia edilizia.
17. Il prodotto non è adatto per l'utilizzo in ambito marittimo.

Important Safety Instructions

1. Read these instructions.
2. Keep these instructions – for future reference.
3. Heed all warnings – on the product and in the owner's guide.
4. Follow all instructions.
5. Do not use this apparatus near water or moisture.
6. Clean only with a dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions – To ensure reliable operation of the product and to protect it from overheating, put the product in a position and location that will not interfere with its proper ventilation.
8. Do not install near any heat sources, such as radiators, heat registers, stoves or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding-type plug has two blades and a third grounding prong. The wider blade or third prong are provided for your safety. If the provided plug does not fit in your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched, particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11. Only use attachments/accessories specified by the manufacturer.
12. Use only with the cart, stand, tripod, bracket or table specified by the manufacturer or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
13. Unplug this apparatus during lightning storms or when unused for long periods of time – to prevent damage to this product.
14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way: such as power-supply cord or plug is damaged; liquid has been spilled or objects have fallen into the apparatus; the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped – Do not attempt to service this product yourself. Opening or removing covers may expose you to dangerous voltages or other hazards.



Please call Bose® to be referred to an authorized service center near you.

15. To prevent risk of fire or electric shock, avoid overloading wall outlets, extension cords, or integral convenience receptacles.
16. Do not let objects or liquids enter the product – as they may touch dangerous voltage points or short-out parts that could result in a fire or electric shock.
17. See product enclosure back for safety related markings.
18. No naked flame sources, such as lighted candles, should be placed on the apparatus.

Information about products that generate electrical noise

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 in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, this is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, you are encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment to an outlet on a different circuit than the one to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Note: *Unauthorized modification of the receiver or radio remote control could void the user's authority to operate this equipment.*

This product complies with the Canadian ICES-003 Class A specifications.

1.0 Introduction

Thank you for purchasing the Bose® PANARAY® system digital controller.

The PANARAY system digital controller uses a digital signal processing (DSP) architecture to provide smooth, accurate spectral response for Bose professional loudspeakers that require active equalization.

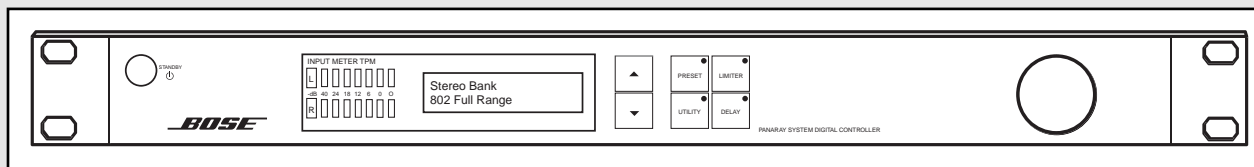
Bose professional loudspeaker EQ can be applied by simply selecting the appropriate preset and configuration. No additional programming is required.

The PANARAY system digital controller has two balanced XLR analog inputs and four balanced XLR analog outputs. It can be configured to run two mono Bose speaker EQ presets or a single stereo Bose speaker EQ preset (including preset crossover settings).

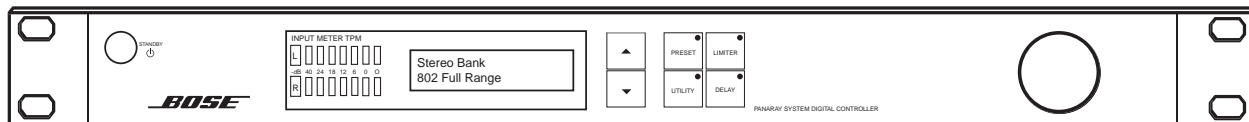
There are a total of 180 presets, which are separated into Stereo, Mono, and Bass Array Banks. All routing is automatic, based on the selected preset and configuration. See the preset chart in section 13.0 for a full list of presets with descriptions and output routing defaults.

In addition to providing Bose speaker equalization, the PANARAY system digital controller also has the following easy-to-use programmable features:

- Four independent programmable line delays (200 ms per output) that can be used for decentralized or distributed speaker alignment and for creating custom bass arrays.
- Four independent programmable output limiters that can be set to protect speakers from unpredictable spikes in program material.
- Programmable signal router that allows each output to select Full Range, High Pass, Low Pass or Bypass EQ combinations of input signals.



2.0 Front Panel



STANDBY button:

Standby on/off

Input Meters:

The peak meter shows the input level of left and right channels. The meter range is: 0 (Overload), 0, -6, -12, -24, -40dB

Overload LEDs:

The Overload LEDs indicate one of two situations.

- The input level is clipping (you will hear it).
- There is an internal DSP overflow.

The Overload LED is lit when one sample is at 0 dBFS.

Display:

The 2 x 16 LCD displays Preset names, parameter names, and values depending on the mode of operation.

Arrow UP Button:

Press to navigate up through the user interface.

Arrow DOWN Button:

Press to navigate down through the user interface.

PRESET Button:

Press to enter preset mode, which provides access to Bose® speaker EQ presets.

LIMITER Button:

Press to access output limiter parameters.

UTILITY Button:

Press to access ROUTING, LEVEL and general SYSTEM parameters.

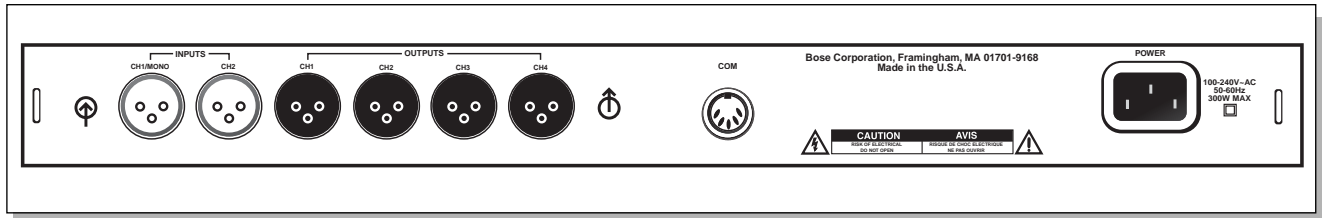
DELAY Button:

Press to access output delay parameters.

Encoder Wheel:

Selects presets and changes parameter values.

3.0 Rear Panel



Balanced XLR Inputs:

Two balanced XLR inputs

Balanced XLR Outputs:

Four balanced XLR outputs

COM Port:

5-pin DIN that will be used for future software upgrades or for adding new Bose® speaker EQ presets

Power Input:

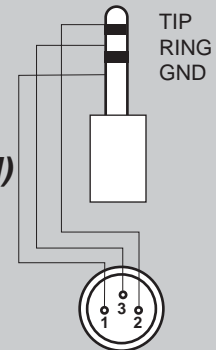
100-240VAC switching power supply input

Jack (balanced) - XLR

Sleeve - Pin 1 (Ground)

Tip - Pin 2 (Hot)

Ring - Pin 3 (Cold)



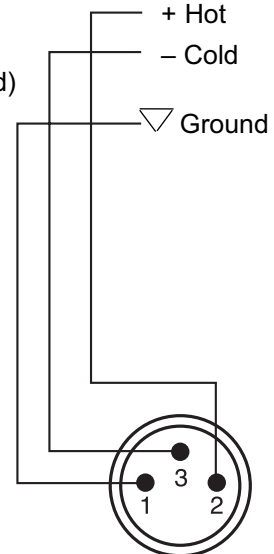
XLR Wiring

Jack (balanced) - XLR

Sleeve - Pin 1 (Ground)

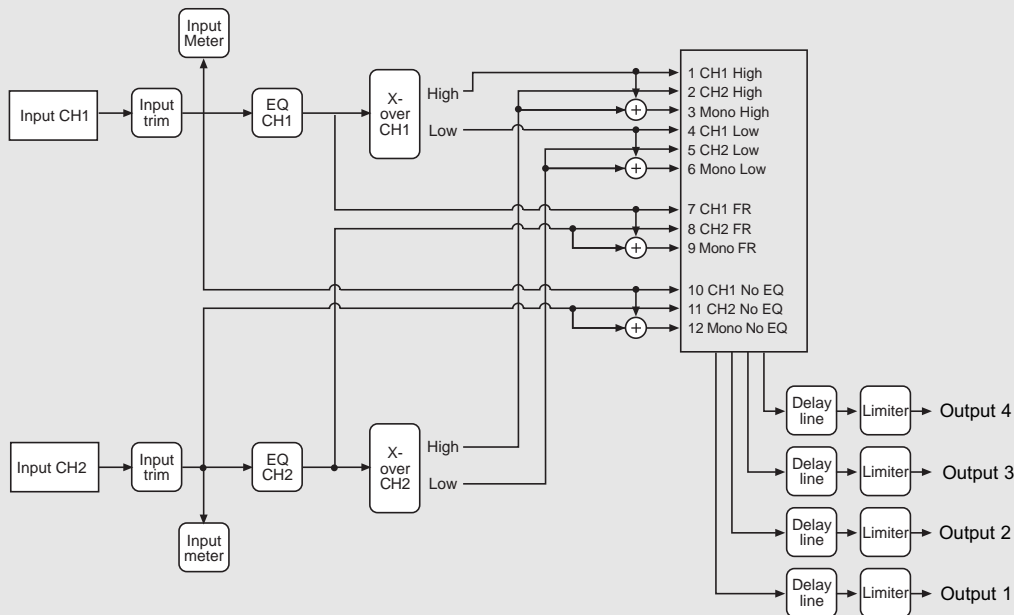
Tip - Pin 2 (Hot)

Ring - Pin 3 (Cold)



4.0 Signal Flow

The PANARAY® system digital controller has the ability to run a single stereo preset, a single mono preset, or to run in dual mono mode. In the following section, the controller's signal flow is broken down to provide a better understanding of its full functionality.

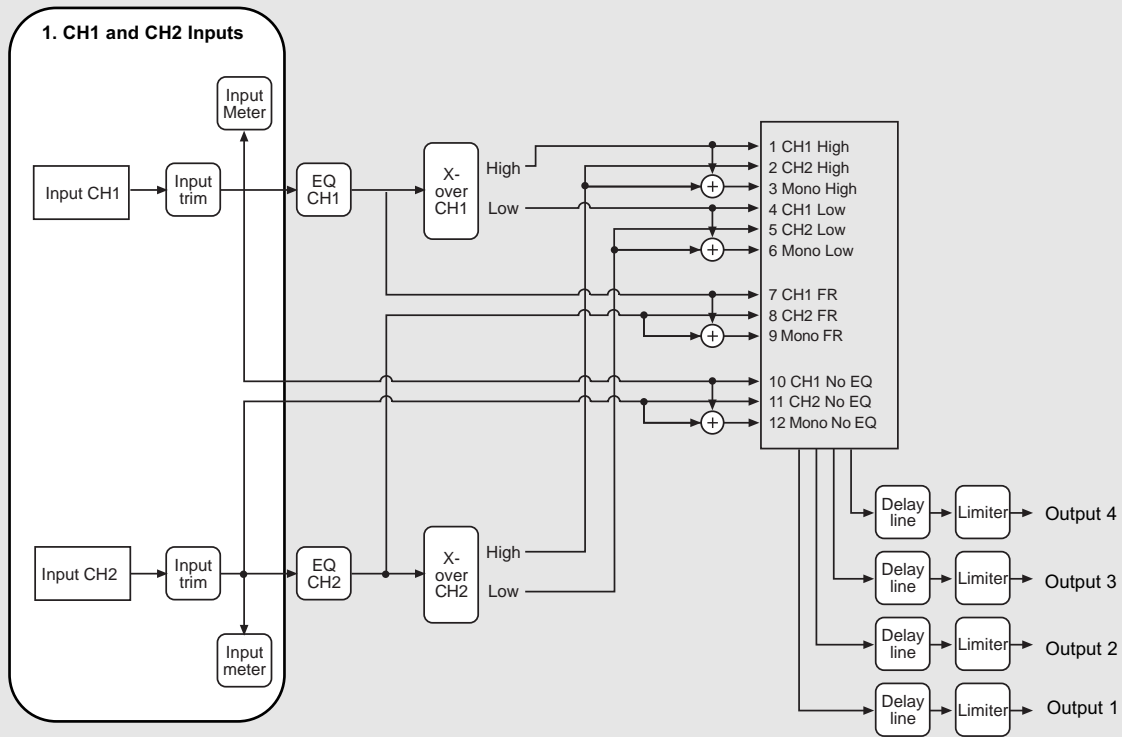


Stereo Operation: When a preset is loaded from the stereo bank, the EQ/crossover blocks both process each input the same way, meaning that the parameters are “linked”. The signal then passes through the router section where the CH1 and CH2 inputs are sent to independent output channels for stereo operation.

Mono Operation: When a preset is loaded from the mono bank, the EQ/crossover blocks both process each input the same way, meaning that the parameters are “linked”. The signal then passes through the router section where the CH1 and CH2 inputs are summed to mono. The controller has the ability to sum a stereo signal to mono, or, it can process a single input for mono operation. Audio information is routed to the same outputs regardless of the number of inputs that are connected.

Dual Mono Operation: When the PANARAY® system digital controller is used in dual mono mode, the EQ/crossover blocks process each input independently – allowing the user to run two independent speaker EQs. The router also processes each input independently, so each output is discrete.

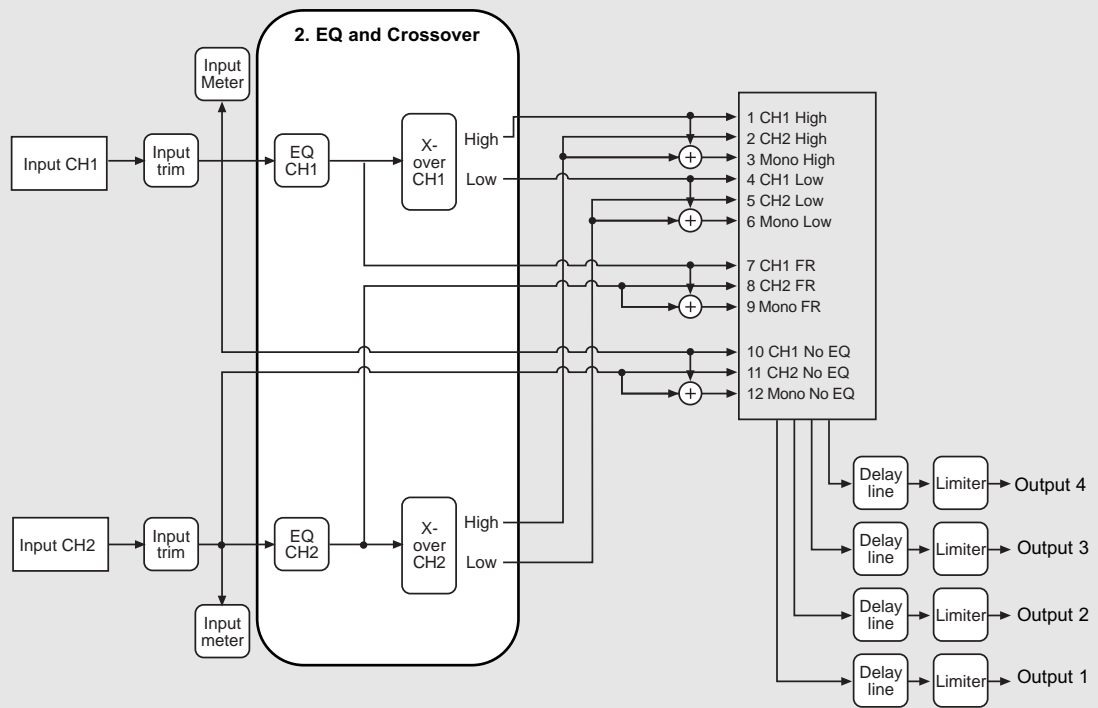
4.1 Signal Flow – CH1 and CH2 Inputs



1. CH1 and CH2 Input Section:

A stereo, mono, or dual mono signal passes through the input section.

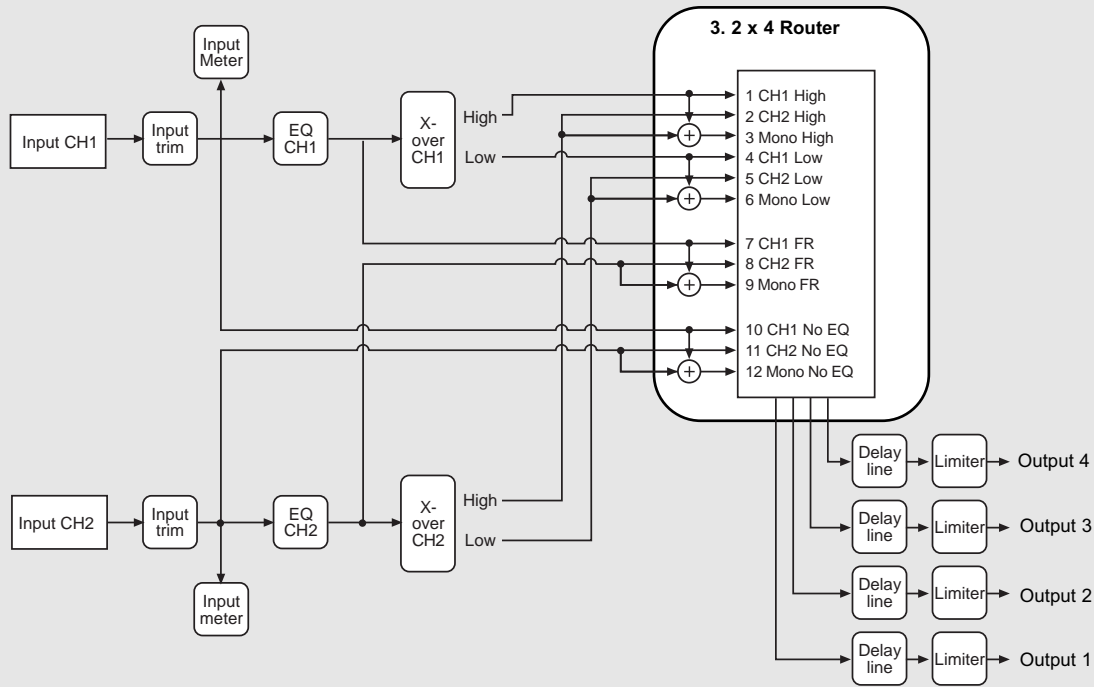
4.2 Signal Flow – EQ and Crossover



2. EQ and Crossover:

Next, the program material passes through the EQ and crossover section.

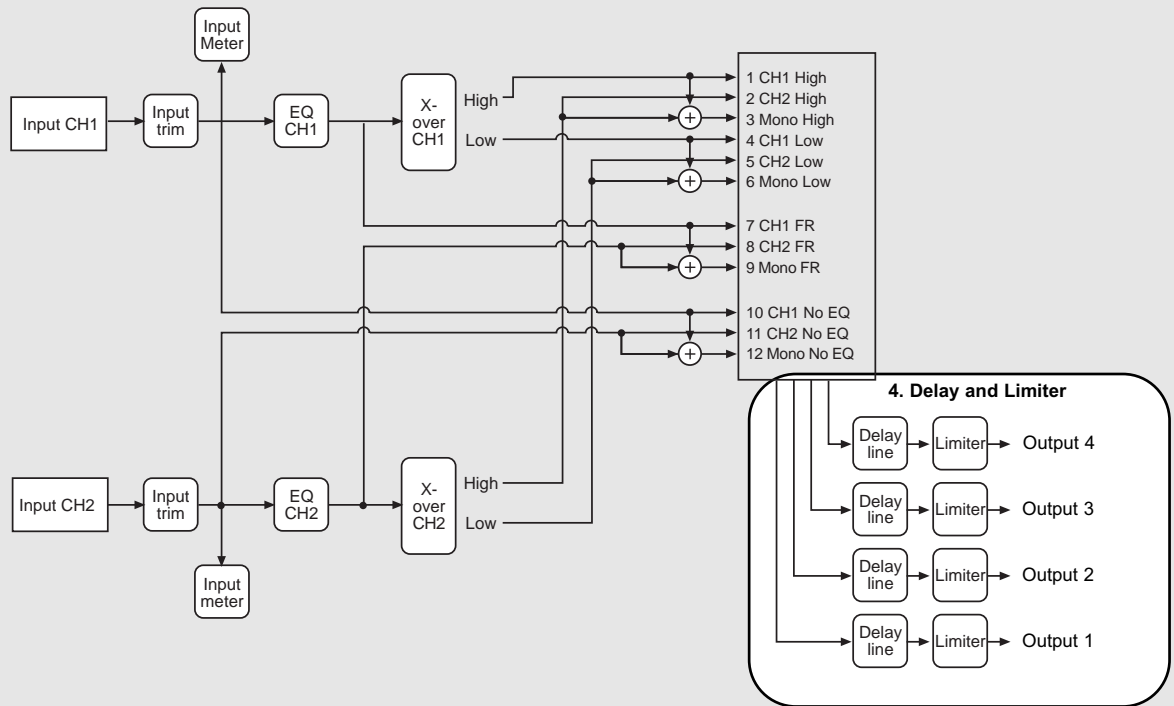
4.3 Signal Flow – 2 x 4 Router



3. 2 x 4 Router:

The 2 x 4 router gives the user the ability to select from the options listed in the routing matrix to the right, and route the selection to any of the controller's four outputs. Complete detail of the router operation can be found in section 9.0.

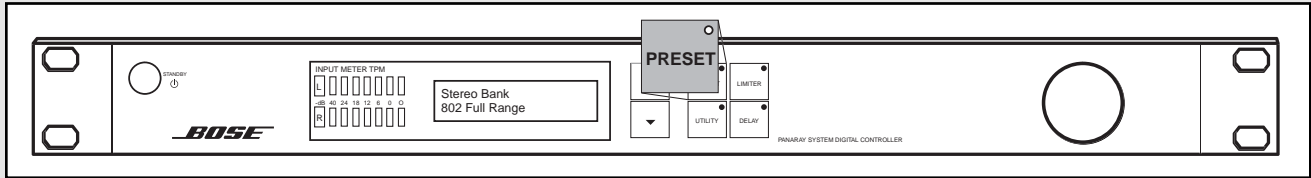
4.4 Signal Flow – Delay and Limiter



4. Delay and Limiter:

After the signal passes through the routing matrix, it goes to each of the four outputs and passes through the delay and limiter blocks on each channel. The delay and limiter blocks can be bypassed by the user. For more information on controlling the delay and limiter see sections 6.0 and 7.0.

5.0 PRESET BUTTON



There are 180 speaker EQ presets in the PANARAY® system digital controller. They are organized into banks: Stereo, Mono, Bass Array and Dual Mono. Within each bank are presets that provide Bose® speaker equalization.

To load a preset from the front panel:

- Press the PRESET button.
Next, use the Arrow UP or Arrow DOWN button to select the configuration bank (Stereo, Mono, etc.).
- Then use the Encoder to select the desired preset. The PANARAY system digital controller automatically updates the outputs to reflect the selected EQ preset and configuration.

The examples on the following pages illustrate how the PANARAY system digital controller is configured for each type of default output. A complete list of presets (with descriptions) can be found in section 13.0.

5.1 PRESET Button – Stereo Bank

Stereo Preset Bank: Presets designed for Stereo operation.

Example 1: Stereo Full Range

PANARAY® System Digital Controller Display

Stereo
802III

Preset Description

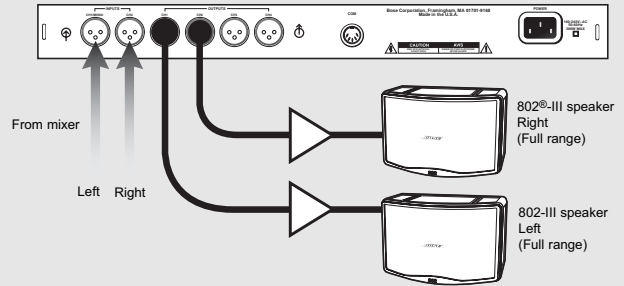
802 -III Speaker Stereo Full Range

Controller Inputs

Ch 1/Mono	Left from mixer
Ch 2	Right from mixer

Controller Default Output Routing

	Ch 1	Ch 2	Ch 3	Ch 4
Routing	802-III speaker CH1 (Full range)	802-III speaker CH2 (Full range)	802-III speaker CH1 (Full range)	802-III speaker CH2 (Full range)
Limiter	Off	Off	Off	Off
Delay	Off	Off	Off	Off



Example 2: Stereo Mid-High with Stereo Bass

PANARAY System Digital Controller Display

Stereo
802III+MB4

Preset Description

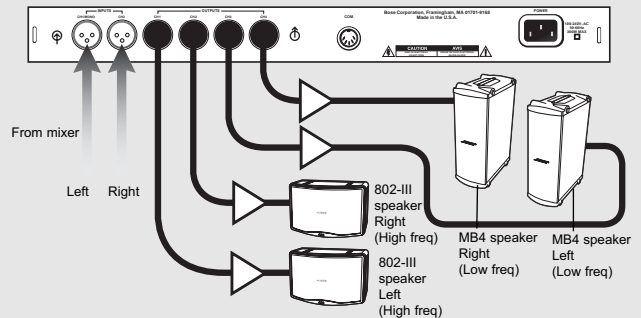
802-III Speaker Stereo with MB4 Speaker Stereo Bass

Controller Inputs

Ch 1/Mono	Left from mixer
Ch 2	Right from mixer

Controller Default Output Routing

	Ch 1	Ch 2	Ch3	Ch4
Routing	802-III speaker CH1 (High freq)	802-III speaker CH2 (High freq)	MB4 speaker CH1 (Low freq)	MB4 speaker CH2 (Low freq)
Limiter	Off	Off	Off	Off
Delay	Off	Off	Off	Off



5.1.1 PRESET Button – Stereo Bank

Example 3: Stereo Mid-High with Mono Bass

Due to space limitations in the PANARAY® system digital controller, there are no Presets that default to a Stereo Mid-High with Mono Bass configuration. To set up the controller for this operation, simply perform the following steps.

1. Select the desired Preset from the Stereo bank.
2. Press the UTILITY Button and use the Arrow DOWN button to navigate to Output Route 3 and Output Route 4. Set both outputs to Mono/Low.

Now all of the bass content is set up to be summed to mono, but the mid-high devices will still be stereo.

Note: Save all changes before loading a new Preset. Unsaved router changes will be lost if another speaker EQ Preset is loaded. To save settings see section 11.0.

PANARAY System Digital Controller Display

Stereo
402II+MB4

Preset Description

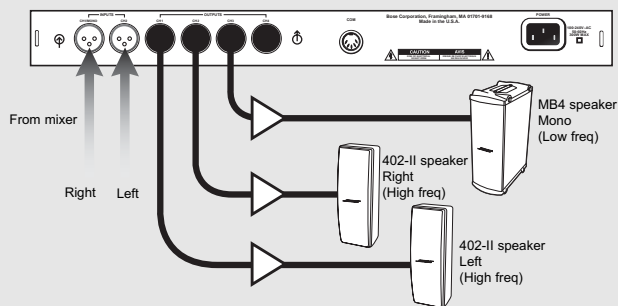
402^{II} -II Speaker Stereo with MB4 Speaker Mono

Controller Inputs

Ch 1/Mono	Left from mixer
Ch 2	Right from mixer

Controller Default Output Routing

	Ch 1	Ch 2	Ch3	Ch4
Routing	402-II speaker CH1 (High freq)	402-II speaker CH2 (High freq)	MB4 speaker CH1 (Low freq)	MB4 speaker CH2 (Low freq)
Limiter	Off	Off	Off	Off
Delay	Off	Off	Off	Off



5.2 PRESET Button – Mono Bank

Mono Preset Bank: Presets designed for Mono Operation.

Example 1: Mono Full Range

PANARAY® System Digital Controller Display

Mono
402II

Preset Description

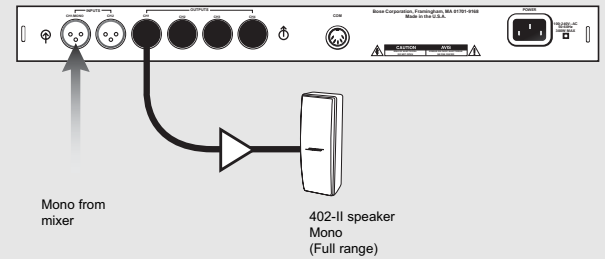
402^{II} -II Speaker Mono Full Range

Controller Inputs

Ch 1/Mono	Mono from mixer
Ch 2	No input

Controller Default Output Routing

	Ch 1	Ch 2	Ch3	Ch4
Routing	402-II speaker Mono (Full range)	402-II speaker Mono (Full range)	402-II speaker Mono (Full range)	402-II speaker Mono (Full range)
Limiter	Off	Off	Off	Off
Delay	Off	Off	Off	Off



Example 2: Mono Mid-High Device with Mono Bass

PANARAY System Digital Controller Display

Mono
502A+502B

Preset Description

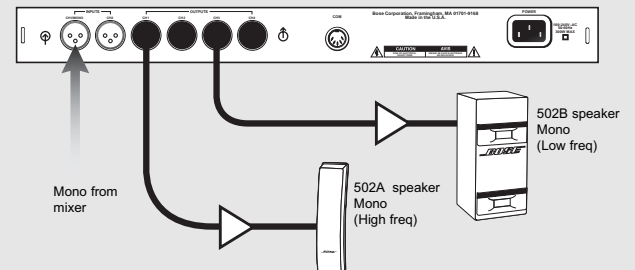
502^A Speaker Mono with 502B Speaker Mono

Controller Inputs

Ch 1/Mono	Mono from mixer
Ch 2	No input

Controller Default Output Routing

	Ch 1	Ch 2	Ch3	Ch4
Routing	502A speaker Mono (High freq)	502A speaker Mono (High freq)	502B speaker Mono (Low freq)	502B speaker Mono (Low freq)
Limiter	Off	Off	Off	Off
Delay	Off	Off	Off	Off



5.3 PRESET Button – Bass Array Bank

Bass Array Presets:

Example 1: 2x Broadside Bass Array

PANARAY® System Digital Controller Display

Bass Array
MB4 2XBS180Hz

Preset Description

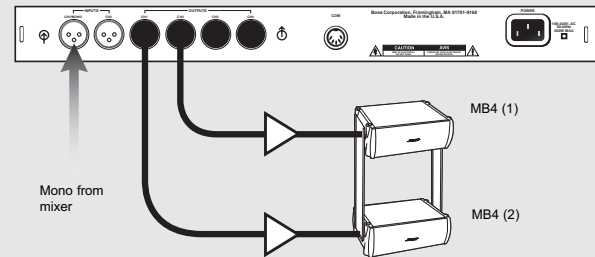
Preset: MB4 2x Broadside Bass Array

Controller Inputs

Ch 1 | Mono source

Controller Default Output Routing

	Ch 1	Ch 2	Ch 3	Ch 4
Routing	MB4 (1) Mono	MB4 (2) Mono	N/A	N/A
Limiter	Off	Off	Off	Off
Delay	Off	Off	Off	Off



Example 2: 2x Endfire Bass Array

PANARAY System Digital Controller Display

Bass Array
MB4 2XEF180Hz

Preset Description

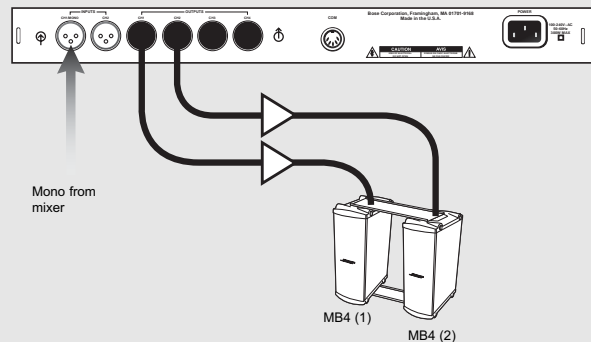
Preset: MB4 2x Endfire Bass Array

Controller Inputs

Ch 1 | Mono source

Controller Default Output Routing

	Ch 1	Ch 2	Ch 3	Ch 4
Routing	MB4 (1) Mono	MB4 (2) Mono	N/A	N/A
Limiter	Off	Off	Off	Off
Delay	On	On	Off	Off



5.3 PRESET Button – Bass Array Bank

Example 2: 4x Endfire Bass Array

PANARAY® System Digital Controller Display

Bass Array
MB4 4XEF180Hz

Preset Description

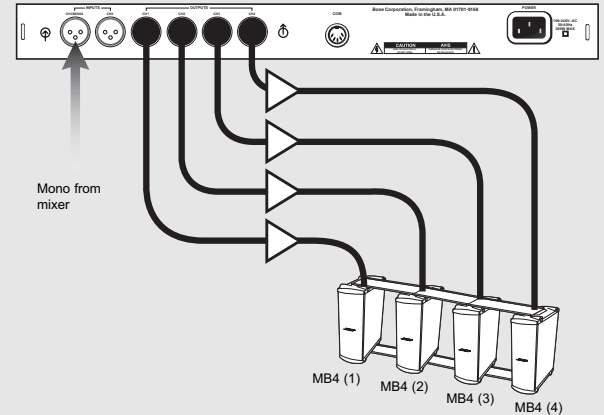
Preset: MB4 4x Endfire Bass Array

Controller Inputs

Ch 1 | Mono source

Controller Default Output Routing

	Ch 1	Ch 2	Ch 3	Ch 4
Routing	MB4 (1) mono	MB4 (2) mono	MB4 (3) mono	MB4 (4) mono
Limiter	Off	Off	Off	Off
Delay	On	On	On	On



5.4 PRESET Button – Dual Mono Operation

Loading presets from Dual Mono mode:

Dual Mono: When the PANARAY® system digital controller is used in Dual Mono mode, the EQ/Crossover blocks process each input independently, allowing you to run two different speaker EQs.

To access Dual Mono mode, press the PRESET button. Then press the Arrow DOWN button until you see the following display:

1:	.402I
2:	402I

The period (.) next to the preset name indicates that the Encoder can change the preset. To select between 1 and 2, use the Arrow UP/Arrow Down buttons.

CH1 Input

The top of the display shows the preset name that will be processed by the CH1 input. This signal will be routed to Outputs CH1 and CH2. If this is a full-range preset, the same EQ will be applied to Outputs CH1 and CH2. If this preset consists of a mid-high device with a bass loudspeaker, the mid-high frequencies will be routed to Output CH1 and the low frequencies will be routed to Output CH2.

CH2 Input

The bottom of the display shows the preset that is processed by the CH2 input. This signal will be routed to Outputs CH3 and CH4. If this is a full-range preset, the same EQ will be applied to Outputs CH3 and CH4. If this preset consists of a mid-high device with a bass loudspeaker, the mid-high frequencies will be routed to Output CH3 and the low frequencies will be routed to Output CH4.

Note: If you only have a connection plugged into Input 1, the signal will only pass through Outputs 1 and 2.

If you only have a signal plugged into Input 2, the signal will only pass through Outputs 3 and 4.

If you want to send the same audio information to both of the PANARAY system digital controller's inputs, you can achieve this in two ways:

1. From your mixer set all of your pan controls to center position (this will sum your information to mono). Next plug the left and right outputs from your mixer into CH1 and CH2 on the PANARAY system digital controller.
2. From a mono source use a Y-cable to send the same information into CH1 and Ch2 on the PANARAY system digital controller.

5.4 PRESET Button – Dual Mono Bank

Dual Mono Presets: Independent selection of two single mono presets.

Example 1: Dual Mono

PANARAY® System Digital Controller Display

1: 802III+502B
2: 402II+MB4

Presets

Preset 1: 802^{II}-III Speaker with 502B Speaker Mono

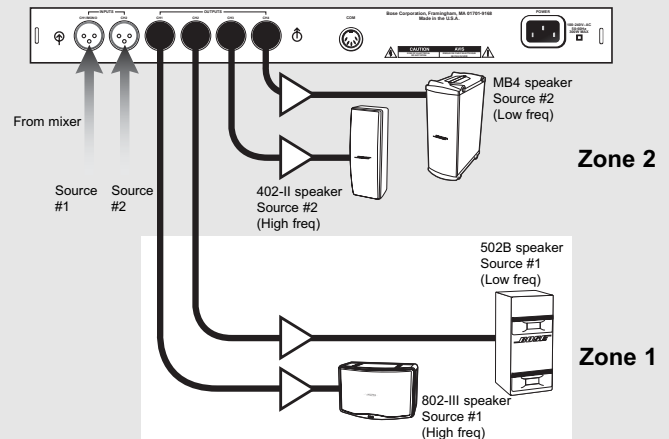
Preset 2: 402^{II}-II Speaker with MB4 Speaker Mono

Controller Inputs

Ch 1	Source #1 from mixer
Ch 2	Source #2 from mixer

Controller Default Output Routing

	Ch 1	Ch 2	Ch3	Ch4
Routing	802-III speaker Source #1 (High freq)	502B speaker Source #1 (Low freq)	402-II speaker Source #2 (High freq)	MB4 speaker Source #2 (Low freq)
Limiter	Off	Off	Off	Off
Delay	Off	Off	Off	Off



Example 2: Dual Mono

PANARAY System Digital Controller Display

1: 502A+502B
2: 402II

Preset Description

Preset 1: 502^{II}-A Speaker with 502B Speaker Mono

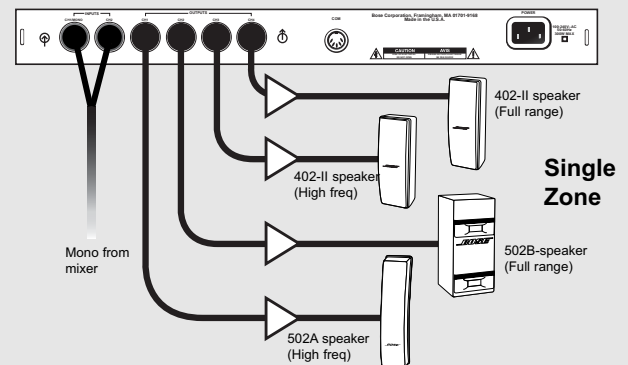
Preset 2: 402^{II}-II

Controller Inputs

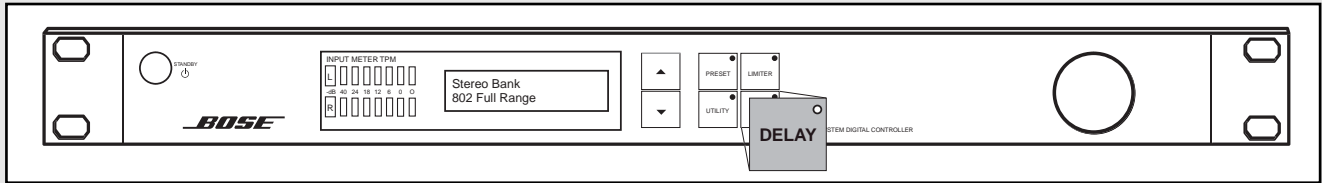
Ch 1	Mono source (from Y-cable)
Ch 2	Mono source (from Y-cable)

Controller Default Output Routing

	Ch 1	Ch 2	Ch3	Ch4
Routing	502A (High freq)	502B (Low freq)	402II (Full range)	402II (Full range)
Limiter	Off	Off	Off	Off
Delay	Off	Off	Off	Off



6.0 DELAY Button



Pressing the DELAY button provides access to four independent output delays. There is a single delay line available on each of the controller's four outputs. The delay function is always available regardless of the mode of operation.

Each delay provides up to 200ms of delay on each of the four outputs (increments in 0.02ms intervals).

Use the Arrow UP and Arrow DOWN buttons to navigate through the parameters, and use the Encoder wheel to select parameter values.

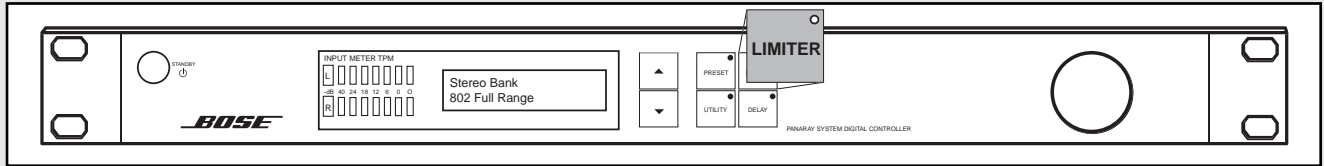
The four output delays have the following parameters:

Delay On/Off: Bypasses delay

Delay Time: Adjustable in 0.02ms increments

Delay Parameter	Range
Delay 1	On/Off
Delay 2	On/Off
Delay 3	On/Off
Delay 4	On/Off
Delay time 1	0.00ms - 200.00ms
Delay time 2	0.00ms - 200.00ms
Delay time 3	0.00ms - 200.00ms
Delay time 4	0.00ms - 200.00ms

7.0 LIMITER Button



Pressing the LIMITER button provides access to four independent output limiters that can protect the loudspeakers from damage if an operator overdrives the system. Use the Arrow UP and Arrow DOWN buttons to navigate through the parameters, and use the ENCODER wheel to select parameter values.

The four output limiters each have the the following parameters:

Limiter On/Off: Bypasses the limiter

Threshold: Sets the level at which the limiter will activate. When the input signal exceeds the threshold, the limiter will be activated. The lower the threshold, the more sensitive the limiting will be.

Ratio: The ratio of gain reduction.
For example: if the ratio is set to 4:1, it means that for every 4dB the actual audio signal will rise only 1dB over the threshold.

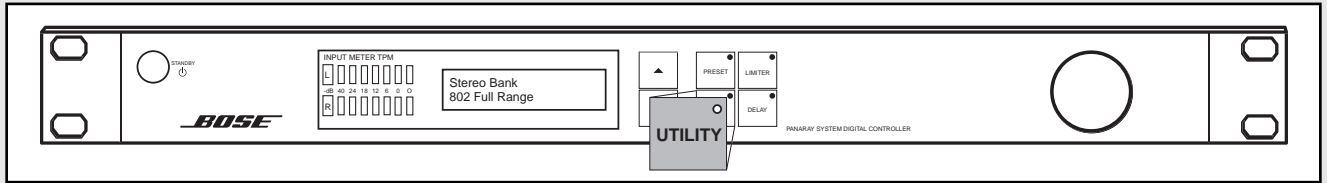
Attack: The time it takes the limiter to reach gain reduction specified by the ratio parameter when the signal is above the set threshold.

Release: Release is the time that the limiter uses to release the gain reduction when the signal exceeds the threshold.

Gain: Use the gain parameter to compensate for unwanted gain reduction caused by heavy limiting.

Limiter Parameter	Range
Lim1	On/Off
Lim2	On/Off
Lim3	On/Off
Lim4	On/Off
Lim1 Threshold	off - inf:1
Lim1 Ratio	off - inf:1
Lim1 Attack	1.0ms - 100ms
Lim1 Release	100ms - 7.0s
Lim1 Gain	-100dB - 18dB
Lim2 Threshold	-40dB - 0dB
Lim2 Ratio	off - inf:1
Lim2 Attack	1.0ms - 100ms
Lim2 Release	100ms - 7.0s
Lim2 Gain	-100dB - 18dB
Lim3 Threshold	-40dB - 0dB
Lim3 Ratio	off - inf:1
Lim3 Attack	1.0ms - 100ms
Lim3 Release	100ms - 7.0s
Lim3 Gain	-100dB - 18dB
Lim4 Threshold	-40dB - 0dB
Lim4 Ratio	off - inf:1
Lim4 Attack	1.0ms - 100ms
Lim4 Release	100ms - 7.0s
Lim4 Gain	-100dB - 18dB

8.0 UTILITY Button



Pressing the **UTILITY** button provides access to the **Level, System and Routing parameters**. Use the Arrow UP/Arrow DOWN buttons to navigate through the parameters, and use the Encoder wheel to select parameter values.

Parameter Definitions:

Output Level

Controls the overall output level of outputs 1, 2, 3, and 4.

Parameter Range: Off; -97dB to 0dB

Default Value: 0dB

Output Range

You can use this parameter to match the input level of other equipment.

Parameter Range: 2dB, 8dB (consumer), 14dB, and 20dB (pro)

Default Value: 20dB

Allows you to adjust the maximum output level of the PANARAY® system digital controller.

Input Sensitivity

Sets level in dBu to allow full-scale operation. A digital product produces the best signal-to-noise performance when operating at 0 dBFS (full scale). For example: For a mixer with +4dBu outputs, the Input Sensitivity should be set to +8dBu to account for peaks in the programming material.

Parameter Range: 0dBu – 24dBu

Default Value: 20dBu

Input Trim CH1

Allows you to change the input level in 1dB steps on CH1.

Parameter Range: -40dB to 0dB

Default Value: 20dB

Input Trim CH2

Allows you to change the input level in 1dB steps on CH2.

Parameter Range: -40dB to 0dB

Default Value: 20dB

Output Route 1

Output Route 2

Output Route 3

Output Route 4

Note: See Section 9.0 on page 29 for details on router functionality.

Delay Unit

Selectable between milliseconds, feet, and meters.

Default Value: milliseconds

8.0 UTILITY Button

Delay Master:

Selectable between PRESET and GLOBAL.

When set to PRESET, the delay values will be reset each time a new preset is selected and will match the delay values stored in the original preset.

When set to GLOBAL, the delay values remain fixed at the current settings even if a new preset is loaded.

Default Value: PRESET

Limiter Master:

Selectable between PRESET or GLOBAL.

When set to PRESET, the limiter values will be reset each time a new preset is selected and will match the limiter values stored in the original preset.

When set to GLOBAL, the limiter values remain fixed at the current settings even if a new preset is loaded.

Default Value: PRESET

Input Configuration:

Selectable between Stereo, CH1+CH2 (sum), or CH1 (mono).

Stereo: Optimizes input gain for stereo operation
CH1+CH2 (sum): Optimizes the input gain when the controller is used to sum CH1 and CH2 to MONO.

CH1 (mono): Optimizes the input gain when a single input is used for MONO operation.

Note: When this option is selected CH2 input does not work.

Default Value: Stereo

Lock Out:

Turns user lockout on and off.

Note: See section 8.1 for more details.

Default Value: Off

Custom Presets:

Provides access to stored presets. Selectable between ON and OFF.

Default Value: Off

View Angle:

Adjusts display contrast. Selectable 0 – 7.

Default Value: 3

8.1 UTILITY Button – User Lockout

User Lockout:

The User Lockout feature is available to prevent others from tampering with the EQs and associated parameters that have been set.

To access the User Lockout feature, press the UTILITY button, then press the Arrow UP/Arrow DOWN button until you see the following display:

```
Lockout :  
Off
```

Toggle the Encoder to select ON.

```
> Lockout  <  
On
```

When set to ON, the User Lockout feature locks the current preset and prevents users from accessing the following buttons and their associated parameters:

PRESET
DELAY
LIMITER
UTILITY

Pressing any of these buttons or turning the Encoder wheel will yield the following message on the display:

```
> Lockout :  <  
> No Access  <
```

To Disable User Lockout:

Press and hold the UTILITY button for five seconds until you see the following display:

```
> Lockout  <  
> Unlocked  <
```

User Lockout is now disabled.

9.0 Router Functionality

The 2 x 4 router is updated every time a new preset is loaded to reflect the stored output configuration. The router can be manually edited by the user to accommodate additional output configurations.

To access the router, press the UTILITY button and use the Arrow UP/Arrow DOWN buttons to navigate through the Utility row. Use the Encoder wheel to change router values. The following routing parameters can be accessed under the UTILITY button:

Output Route 1:

Selects audio information from the CH1 or CH2 inputs and sends it to Output CH1.

Default Value: The routing information is stored with each preset.

Output Route 2:

Selects the type of audio information from the CH1 or CH2 inputs and sends it to Output CH2.

Default Value: The routing information is stored with each preset.

Output Route 3:

Selects the type of audio information from the CH1 or CH2 inputs and sends it to Output CH3.

Default Value: The routing information is stored with each preset.

Output Route 4:

Selects the type of audio information from the CH1 or CH2 inputs and sends it to Output CH4.

Default Value: The routing information is stored with each Preset.

Each of the four outputs can be set to the following:

1. **CH1/High Frequency:** Selects the high frequency information from the CH1 input.
2. **CH2/High Frequency:** Selects the high frequency information from the CH2 input.
3. **Mono/High Frequency:** Selects the high frequency information from the CH1 and CH2 inputs and sums them to Mono.
4. **CH1/Low Frequency:** Selects the low-frequency information from the CH1 input.
5. **CH2/Low Frequency:** Selects the low-frequency information from the CH2 Input.
6. **Mono/Low Frequency:** Selects the low-frequency information from the CH1 and CH2 inputs and sums them to Mono.
7. **CH1/Full Range:** Selects the low-frequency information from the CH1 input.
8. **CH2/Full Range:** Selects the low-frequency information from the CH2 input.
9. **Mono/Full Range:** Selects information from the CH1 and CH2 inputs and sums them to Mono.
10. **CH1/No EQ:** Bypasses active Bose® EQ for CH1 Program Material.
11. **CH2/No EQ:** Bypasses Active Bose EQ for CH2 Program Material.
12. **Mono/No EQ:** Sums the CH1 and CH2 to Mono and bypasses the Bose EQ presets.

Router Functionality

PANARAY® System Digital Controller Output Configuration Table

Router Matrix

Output Route 1	Output Route 2	Output Route 3	Output Route 4
CH1/High	CH1/High	CH1/High	CH1/High
CH2/High	CH2/High	CH2/High	CH2/High
Mono/High	Mono/High	Mono/High	Mono/High
CH1/Low	CH1/Low	CH1/Low	CH1/Low
CH2/Low	CH2/Low	CH2/Low	CH2/Low
Mono/Low	Mono/Low	Mono/Low	Mono/Low
CH1/Full Range	CH1/Full Range	CH1/Full Range	CH1/Full Range
CH2/Full Range	CH2/Full Range	CH2/Full Range	CH2/Full Range
Mono/Full Range	Mono/Full Range	Mono/Full Range	Mono/Full Range
CH1/No EQ	CH1/No EQ	CH1/No EQ	CH1/No EQ
CH2/No EQ	CH2/No EQ	CH2/No EQ	CH2/No EQ
Mono/No EQ	Mono/No EQ	Mono/No EQ	Mono/No EQ

10.0 Optimizing Signal-to-Noise

Optimizing Signal-to-Noise using the PANARAY® System Digital Controller with a Third-Party Amplifier

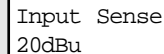
In order to achieve the best signal-to-noise performance with the PANARAY® system digital controller, you must optimize the input sensitivity and output range to match the equipment you are interfacing with.

1. Before making any connections between the PANARAY system digital controller and an amplifier, make sure all of your electronics are set to Off, and your amplifier level controls set to Minimum.
2. Next, connect an audio source to the PANARAY system digital controller inputs CH1 and CH2. If you have a mono source, plug your connection into CH1 and set the input configuration (located under the utility button) to CH1 (mono).
3. Connect the PANARAY system digital controller outputs to your amplifier inputs.
4. Turn on your audio source. Then turn on your PANARAY system digital controller.
5. Select a Speaker EQ on the Panaray controller by pressing the PRESET button and use the Encoder wheel to select the desired speaker EQ.
6. Set the PANARAY system digital controller's input sensitivity. In general you should set this parameter to match the output range of the equipment you connect to the controller. A digital product has the best signal-to-noise performance when operating at 0dBFS (full scale),

so you should run the PANARAY system digital controller as close to 0dBFS as possible.

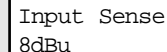
For example: If you have a mixer with +4dBu outputs, the PANARAY controller input sensitivity should be set to +8dBu. This will allow you to reach 0dBFS while at the same time providing some additional headroom to account for peaks in program material. Set the parameter based on the amount of headroom needed.

To access the PANARAY system digital controller input sensitivity, press the UTILITY button. Then press the Arrow DOWN button until you see the following display:



Input Sense
20dBu

Adjust this parameter with the Encoder wheel to match your audio source's maximum output.



Input Sense
8dBu

Next, send a signal from your audio source to the PANARAY system digital controller and view the front panel input meters to ensure your signal is at approximately 0dbFS (full scale). Adjust the input sensitivity parameter accordingly.

Note: The input signal may occasionally light the red Overload LED. This is normal.

7. After you have properly calibrated your PANARAY controller's input sensitivity, you must adjust your controller's output range to match your amplifier's input sensitivity. Since this will vary with each manufacturer, please consult your amplifier user guide.

10.0 Optimizing Signal-to-Noise

Use the table below to match the PANARAY® system digital controller's Output Range to your amplifier.

Output Range Parameter	Amplifier Input Sensitivity
2dBu	Use for anything less than 0.775V
8dBu	0.775V to 0.975V
14dBu	0.975V to 3.9V
20dBu	3.9V to 7.75V
Note: <i>If there are no settings that exactly match your amplifier's input sensitivity, pick the highest setting that is nearest your amplifier input sensitivity and use the controller's OUTPUT LEVEL control to scale back the overall output.</i>	

Set the PANARAY system digital controller output range. First, press the UTILITY button. Then press the Arrow DOWN button until you see the following display:

Output Range
20dB (Pro)

Adjust this parameter with the Encoder wheel to match your amplifier's input sensitivity.

Output Range
14dB (Consumer)

This setting will provide the optimum input level for your amplifier.

8. Select a speaker EQ preset on the PANARAY system digital controller by pressing the PRE SET button and using the Encoder wheel to select the desired speaker EQ preset.
9. Turn your amplifier On, and turn up each level control until you reach the desired SPL.

These settings will automatically be retained.

11.0 Custom Preset Mode

The PANARAY® controller's Custom Preset feature allows users to edit and store the delay, limiting and routing settings. Up to 20 custom presets can be stored using this feature.

After making the desired changes to a preset, follow the steps below to store a new preset.

1. Press and hold the DELAY and LIMITER buttons at the same time (for approximately 5 seconds) until you see the following display:

```
Store: Select no  
1>EMPTY PRESET
```

Use the Encoder wheel to select the location where the preset will be stored (up to 20 locations can be used).

2. Once you have selected your location, press the Arrow DOWN button to name your preset. You will see the following display:

```
Store: Edit name  
1 402I
```

Use the Arrow UP/Arrow DOWN buttons to align the cursor under the desired letter or number you want to change, then move the Encoder wheel through the list of characters. Press the Arrow UP button to move to the next character, and press the Arrow DOWN button to move back. To CANCEL the store process, press the PRESET button.

3. Once you have named your preset, press and hold the DELAY and LIMITER buttons until you see the following display:

```
> Preset      <  
> Stored     <
```

After you store a program, you will be immediately transferred to the custom preset mode. The stored preset will be displayed. Note that the bank designation will be based on the preset that you edited.

For example: If the preset came from the Mono bank, it will be designated as Mono Custom. If a preset originates from the Stereo bank then it will be designated as Stereo Custom. And if a preset originates from the Bass Array bank, it will be designated as Bass Array Custom.

```
Mono Custom  
402I - TEST
```

In this mode, the user only has access to the custom presets. Select presets in the same manner as in the standard operating mode. The Encoder wheel selects presets and the Arrow UP/Arrow DOWN buttons select the desired bank.

To Turn Off Custom Presets:

To turn off custom presets and return to standard operation press the UTILITY button and use the Arrow UP/Arrow DOWN button to find the Custom Presets parameter and set it to Off. You will immediately be transferred to standard operating mode.

To Activate Custom Presets:

To return to custom preset mode, go back to the UTILITY row and turn the Custom Presets parameter to On. You will immediately be transferred to custom preset mode. To create additional custom presets, repeat the procedure above.

Note: You cannot store a Dual Mono preset, but can create one by storing two custom mono presets, which you have access to in custom preset mode. Follow standard operation instructions for loading Dual Mono presets.

12.0 Bass Array Presets

The following presets are available in the PANARAY® system digital controller for Bass Array Applications:

MB4 2xBS280Hz – The MB4 2x Broadside Bass Array preset provides 360 degree horizontal coverage with a 10 to 15dB suppression in energy going up and down from 80 – 200Hz. The crossover is set at 280Hz and is recommended for use with the LT Series.

MB4 2xBS180Hz – The MB4 2x Broadside Bass Array preset provides 360 degree horizontal coverage with a 10 to 15dB suppression in energy going up and down from 80 – 200Hz. The crossover is set at 180Hz and is recommended for use with MA12, MB4 and 02 Series speakers.

MB4 2xEF280Hz – The MB4 2x Endfire Bass Array preset provides 180 degree conical dispersion @ 160Hz. The crossover is set at 280Hz and is recommended for use with MA12, MB4 and LT Series speakers.

MB4 2xEF180Hz – The MB4 2x Endfire Bass Array preset provides 180 degree conical dispersion @ 160Hz. The crossover is set at 180Hz and is recommended for use with MA12, MB4 and 02 Series speakers.

MB4 4xEF280Hz – The MB4 4x Endfire Bass Array preset provides 120 degree conical dispersion @ 160Hz. The crossover is set at 280Hz and is recommended for use with MA12, MB4 and LT Series speakers.

MB4 4xEF180Hz – The MB4 4x Endfire Bass Array preset provides 120 degree conical dispersion @ 160Hz. The crossover is set at 180Hz and is recommended for use with MA12, MB4 and 02 Series speakers.

Loading and Setting Up Bass Arrays Using Presets

1. Press the PRESET button on the front panel of the PANARAY system digital controller.
2. Press the Arrow DOWN button until you see the following display:

```
Bass Array
MB4 2xBS280Hz
```

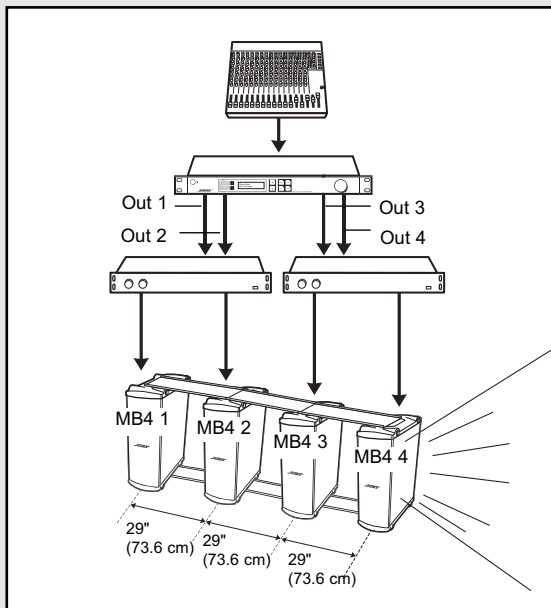
3. Turn the Encoder wheel to the right to select the desired bass array configuration.

```
Bass Array
MB4 4xEF280Hz
```

4. Once you have selected your bass array preset, the program is automatically loaded and ready to go.

12.1 Bass Array Setup and Connections

MB4 4x Endfire Bass Array



Bose® Components:

- 1 PANARAY® system digital controller
- 2 Bose 1800-VI power amplifiers
- 2 4x endfire bass array brackets (top and bottom)
- 4 MB4 modular bass loudspeakers

Spacing:

In order to effectively create the MB4 4x endfire bass array, each unit must be spaced 29" (73.6 cm) on center from each other. This is shown in the illustration above. IF THE UNITS ARE NOT SPACED PROPERLY THE BASS ARRAY WILL NOT WORK.

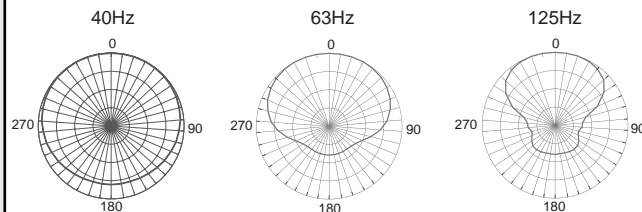
Note: All EQ and delay settings are already set in the PANARAY system digital controller. In order for the bass array to work, you must connect the MB4 units to the appropriate outputs on the controller and apply the proper spacing. The output assignments are listed to the right.

MB4 4x endfire bass array (280Hz and 180Hz)

PANARAY® system digital controller output

CH1	MB4 (1)
CH2	MB4 (2)
CH3	MB4 (3)
CH4	MB4 (4)

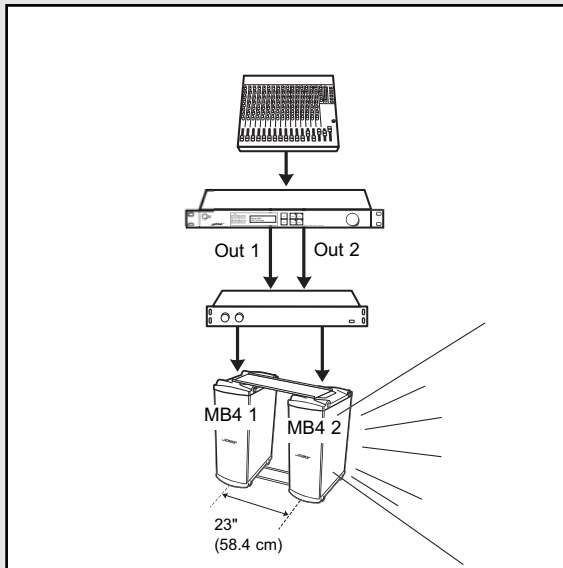
MB4 4x Endfire Horizontal Octave-Band Polar Data



This array fires from the end of the fourth MB4 speaker to provide the dispersion shown above.

12.1 Bass Array Setup and Connections

MB4 2x Endfire Bass Array



Bose® Components:

- 1 PANARAY® system digital controller
- 1 Bose 1800-VI power amplifier
- 2 2x endfire bass array brackets (top and bottom)
- 2 MB4 modular bass loudspeakers

Spacing:

In order to effectively create the MB4 2x endfire bass array, each unit must be spaced 23" (58.4 cm) on center from each other. This is shown in the illustration above. IF THE UNITS ARE NOT SPACED PROPERLY THE BASS ARRAY WILL NOT WORK.

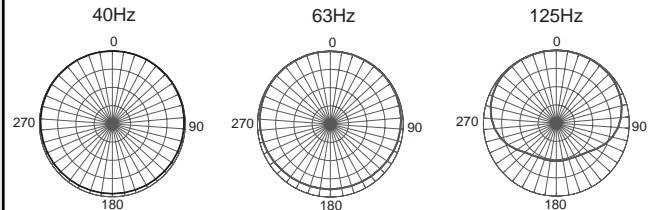
Note: All EQ and delay settings are already set in the PANARAY system digital controller. In order for the bass array to work, you must connect the MB4 units to the appropriate outputs on the controller and apply the proper spacing. The output assignments are listed to the right.

MB4 4x endfire bass array (280Hz and 180Hz)

PANARAY® system digital controller output

CH1	MB4 (1)
CH2	MB4 (2)
CH3	MB4 (3)
CH4	MB4 (4)

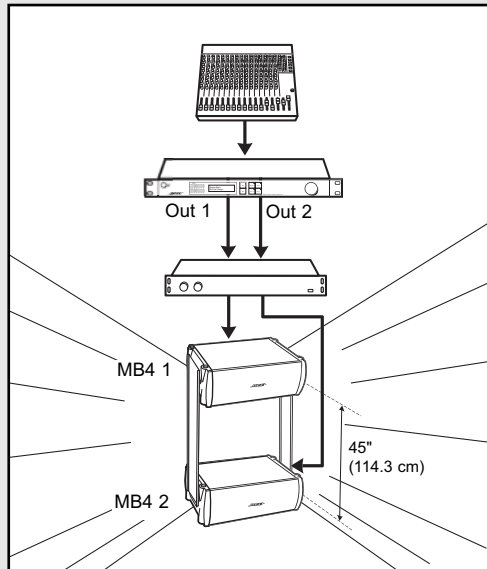
MB4 2x Endfire Horizontal Octave-Band Polar Data



This array fires from the end of the second MB4 speaker to provide the dispersion shown above.

12.1 Bass Array Setup and Connections

MB4 2x Broadside Bass Array



Bose® Components:

- 1 PANARAY® system digital controller
- 1 Bose 1800-VI power amplifier
- 2 2x broadside bass array brackets (top and bottom)
- 2 MB4 modular bass loudspeakers

Spacing:

In order to effectively create the MB4 2x endfire bass array, each unit must be spaced 45" (114.3 cm) on center from each other. This is shown in the illustration above. IF THE UNITS ARE NOT SPACED PROPERLY THE BASS ARRAY WILL NOT WORK.

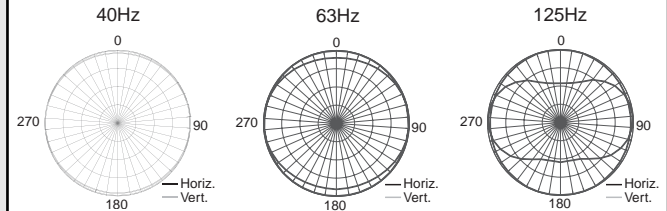
Note: All EQ and delay settings are already set in the PANARAY system digital controller. In order for the bass array to work, you must connect the MB4 units to the appropriate outputs on the controller and apply the proper spacing. The output assignments are listed to the right.

MB4 2x broadside bass array (280Hz and 180Hz)

PANARAY[®] system digital controller output

CH1	MB4 (1)
CH2	MB4 (2)
CH3	Not used
CH4	Not used

MB4 2x Broadside Horizontal Octave-Band Polar Data



This array fires from the sides of both MB4 speakers to provide the dispersion shown above.

13.0 Bose® Speaker EQ Preset List

The following is a list of 180 presets that are available in the PANARAY® system digital controller. The presets are separated into three separate banks: Mono, Stereo and Bass Array. Included in this list is the name of each preset as it appears on the PANARAY controller LCD as well as a description of the preset and the default settings for each of the four outputs.

LCD Display	Preset Description	Output Default Configuration			
Mono Presets	Preset Description	Output 1	Output 2	Output 3	Output 4
Mono Preset Name	Preset Description	Preset Default	Preset Default	Preset Default	Preset Default
Stereo Preset	Preset Description	Output 1	Output 2	Output 3	Output 4
Stereo Preset Name	Preset Description	Preset Default	Preset Default	Preset Default	Preset Default
Bass Array	Preset Description	Output 1	Output 2	Output 3	Output 4
Bass Array Preset Name	Preset Description	Preset Default	Preset Default	Preset Default	Preset Default

13.1 Bose® Speaker EQ Preset List – Mono Bank

PANARAY 402[□] Series I loudspeaker Mono Presets	402 Series I loudspeaker Preset Descriptions	Output 1	Output 2	Output 3	Output 4
402I	402 Series I loudspeaker Full Range EQ	402I Mono Full Range	402I Mono Full Range	402I Mono Full Range	402I Mono Full Range
402I+502B	402 Series I loudspeaker bi-amped with 502 [□] B loudspeaker	402I Mono High	402I Mono High	502B Mono Low	502B Mono Low
402I+MB4	402 Series I loudspeaker bi-amped with MB4	402I Mono High	402I Mono High	MB4 Mono Low	MB4 Mono Low
402I+AWCS	402 Series I loudspeaker bi-amped with AWCS Note: Limiting is assigned to outputs 3 and 4 for protection of the AWCS	402I Mono High	402I Mono High	AWCS Mono Low	AWCS Mono Low
402I HF	402 Series I loudspeaker bi-amped @ 160Hz	402I Mono High	402I Mono High	402I Mono High	402I Mono High
PANARAY 402[□] Series II					
loudspeaker Mono Presets	loudspeaker Preset Descriptions	Output 1	Output 2	Output 3	Output 4
402II	402 Series II loudspeaker Full Range EQ	402II Mono Full Range	402II Mono Full Range	402II Mono Full Range	402II Mono Full Range
402II+502B	402 Series II loudspeaker bi-amped with 502B loudspeaker	402II Mono High	402II Mono High	502B Mono Low	502B Mono Low
402II+502BEX	402 Series II loudspeaker bi-amped with 502BEX loudspeaker	402II Mono High	402II Mono High	502BEX Mono Low	502BEX Mono Low
402II+MB4	402 Series II loudspeaker bi-amped with MB4	402II Mono High	402II Mono High	MB4 Mono Low	MB4 Mono Low
402II+AWCS	402 Series II loudspeaker bi-amped with AWCS Note: Limiting is assigned to outputs 3 and 4 for protection of the AWCS.	402II Mono High	402II Mono High	AWCS Mono Low	AWCS Mono Low
402II HF	402 Series II loudspeaker bi-amped @ 180Hz	402II Mono High	402II Mono High	402II Mono High	402II Mono High

13.1 Bose® Speaker EQ Preset List – Mono Bank

PANARAY 502 A loudspeaker Mono Presets	502A loudspeaker Preset Descriptions	Output 1	Output 2	Output 3	Output 4
502A	502A loudspeaker Full Range EQ	502A Mono Full Range	502A Mono Full Range	502A Mono Full Range	502A Mono Full Range
502A+502B	502A loudspeaker bi-amped with 502B	502A Mono High	502A Mono High	502B Mono Low	502B Mono Low
502A+MB4	502A loudspeaker bi-amped with MB4	502A Mono High	502A Mono High	MB4 Mono Low	MB4 Mono Low
502A+AWCS	502A loudspeaker bi-amped with AWCS Note: Limiting is assigned to outputs 3 and 4 for protection of the AWCS	502A Mono High	502A Mono High	AWCS Mono Low	AWCS Mono Low
502A HF	502A loudspeaker bi-amped @ 160Hz	502A Mono High	502A Mono High	502A Mono High	502A Mono High
PANARAY 802 Series II loudspeaker Mono Presets	802 Series II loudspeaker Preset Descriptions	Output 1	Output 2	Output 3	Output 4
802II	802 Series II loudspeaker Full Range EQ	802II Mono Full Range	802II Mono Full Range	802II Mono Full Range	802II Mono Full Range
802II+502B	802 Series II loudspeaker bi-amped with 502B loudspeaker	802II Mono High	802II Mono High	502B Mono Low	502B Mono Low
802II+MB4	802 Series II loudspeaker bi-amped with MB4	802II Mono High	802II Mono High	MB4 Mono Low	MB4 Mono Low
802II+AWCS	802 Series II loudspeaker bi-amped with AWCS Note: Limiting is assigned to outputs 3 and 4 for protection of the AWCS	802II Mono High	802II Mono High	AWCS Mono Low	AWCS Mono Low
802II HF	802 Series II loudspeaker bi-amped @ 112Hz	802II Mono High	802II Mono High	802II High	802II High
802IISTK	Stacked 802 Series II loudspeaker EQ	802II Full Range	802II Full Range	802II Full Range	802II Full Range
802IISTK+502B	Stacked 802 Series II loudspeakers bi-amped with 502B loudspeaker	802II Mono High	802II Mono High	502B Mono Low	502B Mono Low

Bose® Speaker EQ Preset List – Mono Bank

PANARAY 802 Series II loudspeaker Mono Presets	802 Series II loudspeaker Preset Descriptions	Output 1	Output 2	Output 3	Output 4
802IISTK+AWCS	Stacked 802 Series II loudspeakers biamped with AWCS Note: Limiting is assigned to outputs 3 and 4 for protection of the AWCS	802II Mono High	802II Mono High	AWCS Mono Low	AWCS Mono Low
802IISTK HF	Stacked 802 Series II loudspeakers biamped @ 112Hz	802II Mono High	802II Mono High	802II Mono High	802II Mono High
PANARAY 802 Series III loudspeaker Mono Presets	802 Series III loudspeaker Preset Descriptions	Output 1	Output 2	Output 3	Output 4
802III	802 Series III loudspeaker Full Range EQ	802III Mono Full Range	802III Mono Full Range	802III Mono Full Range	802III Mono Full Range
802III+502B	802 Series III loudspeaker bi-amped with 502B loudspeaker	802III Mono High	802III Mono High	502B Mono Low	502B Mono Low
802III+502BEX	802 Series III loudspeaker bi-amped with 502BEX loudspeaker	802III Mono High	802III Mono High	502BEX Mono Low	502BEX Mono Low
802III+MB4	802 Series III loudspeaker bi-amped with MB4	802III Mono High	802III Mono High	MB4 Mono Low	MB4 Mono Low
802III+AWCS	802 Series III loudspeaker bi-amped with AWCS Note: Limiting is assigned to outputs 3 and 4 for protection of the AWCS	802III Mono High	802III Mono High	AWCS Mono Low	AWCS Mono Low
802III HF	802 Series III loudspeaker bi-amped @ 125Hz	802III Mono High	802III Mono High	802III Mono High	802III Mono High
802IIIST	Stacked 802 Series III loudspeaker EQ	802III Mono Full Range	802III Mono Full Range	802III Mono Full Range	802III Mono Full Range
802IIIST+502B	Stacked 802 Series III loudspeakers bi-amped with 502B loudspeaker	802III Mono High	802III Mono High	502B Mono Low	502B Mono Low
802IIIST+502X	Stacked 802 Series III loudspeakers bi-amped with 502BEX loudspeaker	802III Mono High	802III Mono High	502BEX Mono Low	502BEX Mono Low
802IISTK+MB4	Stacked 802 Series III loudspeakers bi-amped with MB4	802III Mono High	802III Mono High	MB4 Mono Low	MB4 Mono Low

Bose® Speaker EQ Preset List – Mono Bank

PANARAY® 802 Series III loudspeaker Mono Presets	802 Series III loudspeaker Preset Descriptions	Output 1	Output 2	Output 3	Output 4
802IIISTK+AWCS	Stacked 802 Series III loudspeaker bi-amped with AWCS Note: Limiting is assigned to outputs 3 and 4 for protection of the AWCS	802III Mono/High	802III Mono/High	802III Mono/Low	802III Mono/Low
802IIISTK HP	Stacked 802 Series III loudspeaker bi-amped @ 125 Hz	802III Mono/High	802III Mono/High	802III Mono/High	802III Mono/High
PANARAY MA12 loudspeaker Mono Presets					
PANARAY MA12 loudspeaker Mono Presets	MA12 loudspeaker Preset Descriptions	Output 1	Output 2	Output 3	Output 4
MA12 WALL	MA12 loudspeaker Full Range, Wall Mount, EQ Curve	MA12 Mono Full Range	MA12 Mono Full Range	MA12 Mono Full Range	MA12 Mono Full Range
MA12 FREE	MA12 loudspeaker Full Range, Free Field, EQ Curve	MA12 Mono Full Range	MA12 Mono Full Range	MA12 Mono Full Range	MA12 Mono Full Range
MA12+502B	MA12 loudspeaker bi-amped with 502 ^B B loudspeaker	MA12 Mono High	MA12 Mono High	502B Mono Low	502B Mono Low
MA12+MB4	MA12 loudspeaker bi-amped with MB4	MA12 Mono High	MA12 Mono High	MB4 Mono Low	MB4 Mono Low
MA12 HF	MA12 loudspeaker bi-amped @ 160 Hz	MA12 Mono High	MA12 Mono High	MA12 Mono High	MA12 Mono High
MA12STK WALL	Stacked MA12 loudspeaker Full Range, Wall Mount, EQ Curve	MA12 Mono Full Range	MA12 Mono Full Range	MA12 Mono Full Range	MA12 Mono Full Range
MA12STK FREE	Stacked MA12 loudspeaker Full Range, Free Field, EQ Curve	MA12 Mono Full Range	MA12 Mono Full Range	MA12 Mono Full Range	MA12 Mono Full Range
MA12STK+502B	Stacked MA12 loudspeaker bi-amped with 502B loudspeaker	MA12 Mono High	MA12 Mono High	502B Mono Low	502B Mono Low
MA12STK+MB4	Stacked MA12 loudspeaker bi-amped with MB4	MA12 Mono High	MA12 Mono High	MB4 Mono Low	MB4 Mono Low
MA12STK HF	Stacked MA12 loudspeaker bi-amped @ 160Hz	MA12 Mono High	MA12 Mono High	MA12 Mono High	MA12 Mono High

Bose® Speaker EQ Preset List – Mono Bank

PANARAY MB4 loudspeaker Mono Presets	MB4 loudspeaker Preset Descriptions	Output 1	Output 2	Output 3	Output 4
MB4 100Hz LP	MB4 loudspeaker 100Hz Low Pass	MB4	MB4	MB4	MB4
MB4 160Hz LP	MB4 loudspeaker 160Hz Low Pass	MB4	MB4	MB4	MB4
MB4 200Hz LP	MB4 loudspeaker 200Hz Low Pass	MB4	MB4	MB4	MB4
MB4 280Hz LP	MB4 loudspeaker 280Hz Low Pass	MB4	MB4	MB4	MB4
PANARAY 502 B loudspeaker Mono Presets	502B loudspeaker Preset Descriptions	Output 1	Output 2	Output 3	Output 4
502B	502B loudspeaker Mono Low Pass @ 160 Hz	502B	502B	502B	502B
PANARAY 502 BEX loudspeaker Mono Presets	502BEX loudspeaker Preset Descriptions	Output 1	Output 2	Output 3	Output 4
502BEX	502BEX loudspeaker Mono Low Pass @ 200 Hz	502BEX	502BEX	502BEX	502BEX
AWCS Mono Presets	AWCS Preset Descriptions	Output 1	Output 2	Output 3	Output 4
AWCS	AWCS Mono Low Pass with limiting assigned to all four outputs	AWCS	AWCS	AWCS	AWCS
PANARAY LT3202 Mono Presets	LT3202 loudspeaker Preset Descriptions	Output 1	Output 2	Output 3	Output 4
LT3202	LT3202 loudspeaker Full Range EQ	LT3202 Mono Full Range	LT3202 Mono Full Range	LT3202 Mono Full Range	LT3202 Mono Full Range
LT3202CLUSTER	LT3202 loudspeaker Cluster EQ	LT3202 Mono Full Range	LT3202 Mono Full Range	LT3202 Mono Full Range	LT3202 Mono Full Range
LT3202+MB4	LT3202 loudspeaker bi-amped with MB4	LT3202 Mono High	LT3202 Mono High	MB4 Mono Low	MB4 Mono Low
LT3202+502BEX	LT3202 loudspeaker bi-amped with 502BEX loudspeaker	LT3202 Mono High	LT3202 Mono High	502BEX Mono Low	502BEX Mono Low

Bose® Speaker EQ Preset List – Mono Bank

PANARAY LT4402 loudspeaker Mono Presets	LT4402 loudspeaker Preset Descriptions	Output 1	Output 2	Output 3	Output 4
LT4402	LT4402 loudspeaker Full Range EQ	LT4402 Mono Full Range	LT4402 Mono Full Range	LT4402 Mono Full Range	LT4402 Mono Full Range
LT4402CLUSTER	LT4402 Cluster EQ	LT4402 Mono Full Range	LT4402 Mono Full Range	LT4402 Mono Full Range	LT4402 Mono Full Range
LT4402+MB4	LT4402 loudspeaker bi-amped with MB4	LT4402 Mono High	LT4402 Mono High	MB4 Mono Low	MB4 Mono Low
LT4402+502BEX	LT4402 loudspeaker bi-amped with 502 [□] BEX loudspeaker	LT4402 Mono High	LT4402 Mono High	502BEX Mono Low	502BEX Mono Low
PANARAY LT9702 loudspeaker Mono Presets					
LT9702 loudspeaker Mono Presets	LT9702 loudspeaker Preset Descriptions	Output 1	Output 2	Output 3	Output 4
LT9702	LT9702 loudspeaker Full Range EQ	LT9702 Mono Full Range	LT9702 Mono Full Range	LT9702 Mono Full Range	LT9702 Mono Full Range
LT9702CLUSTER	LT9702 Cluster EQ	LT9702 Mono Full Range	LT9702 Mono Full Range	LT9702 Mono Full Range	LT9702 Mono Full Range
LT9702+MB4	LT9702 loudspeaker bi-amped with MB4	LT9702 Mono High	LT9702 Mono High	MB4 Mono Low	MB4 Mono Low
LT9702+502BEX	LT9702 loudspeaker bi-amped with 502BEX loudspeaker	LT9702 Mono High	LT9702 Mono High	502BEX Mono Low	502BEX Mono Low
FreeSpace Model 8 loudspeaker Mono Presets					
Model 8 loudspeaker Mono Presets	Model 8 loudspeaker Preset Descriptions	Output 1	Output 2	Output 3	Output 4
M8	Model 8 loudspeaker Full Range EQ	M8 Mono Full Range	M8 Mono Full Range	M8 Mono Full Range	M8 Mono Full Range
M8+MB4	Model 8 loudspeaker bi-amped with MB4	M8 Mono High	M8 Mono High	MB4 Mono Low	MB4 Mono Low
M8+FS3	Model 8 loudspeaker bi-amped with FreeSpace [□] 3 loudspeaker	M8 Mono High	M8 Mono High	FS3 Mono Low	FS3 Mono Low
M8+FS1B	Model 8 loudspeaker bi-amped with FreeSpace 1B loudspeaker	M8 Mono High	M8 Mono High	FS1B Mono Low	FS1B Mono Low

Bose® Speaker EQ Preset List – Mono Bank

FreeSpace Model 32 loudspeaker Mono Presets	Model 32 loudspeaker Preset Descriptions	Output 1	Output 2	Output 3	Output 4
M32	Model 32 loudspeaker Full Range EQ	M32 Mono Full Range	M32 Mono Full Range	M32 Mono Full Range	M32 Mono Full Range
M32+MB4	Model 32 loudspeaker bi-amped with MB4	M32 Mono High	M32 Mono High	MB4 Mono Low	MB4 Mono Low
M32+FS3	Model 32 loudspeaker bi-amped with FS3	M32 Mono High	M32 Mono High	FS3 Mono Low	FS3 Mono Low
M32+FS1B	Model 32 loudspeaker bi-amped with FS1B	M32 Mono High	M32 Mono High	FS1B Low	FS1B Low
M32+502BEX	Model 32 loudspeaker bi-amped with 502 ⁺ BEX loudspeaker	M32 Mono High	M32 Mono High	502BEX Mono Low	502BEX Mono Low
FreeSpace Model 1B loudspeaker Mono Presets					
FreeSpace Model 1B loudspeaker Mono Presets	FreeSpace Model 1B loudspeaker Preset Descriptions	Output 1	Output 2	Output 3	Output 4
FS1B 100Hz LP	FreeSpace Model 1B loudspeaker 100Hz Low Pass	FS1B	FS1B	FS1B	FS1B
FS1B SURFACE	FreeSpace Model 1B loudspeaker Surface Mount EQ	FS1B	FS1B	FS1B	FS1B
FS1B FLUSH	FreeSpace Model 1B loudspeaker Flush Mount EQ	FS1B	FS1B	FS1B	FS1B
FreeSpace 3 Bass Mono Presets					
FreeSpace 3 Bass Mono Presets	FreeSpace 3 Bass Preset Descriptions	Output 1	Output 2	Output 3	Output 4
FS3 100Hz LP	FreeSpace 3 Bass 100Hz Low Pass	FS3	FS3	FS3	FS3
FS3 150Hz LP	FreeSpace 3 Bass 150Hz Low Pass	FS3	FS3	FS3	FS3
FreeSpace 360 Mono Presets					
FreeSpace 360 Mono Presets	FreeSpace 360 loudspeaker Preset Descriptions	Output 1	Output 2	Output 3	Output 4
FS360 HARD	FS360 loudspeaker inground hard EQ	FS360 Mono Full Range	FS360 Mono Full Range	FS360 Mono Full Range	FS360 Mono Full Range
FS360 SOFT	FS360 loudspeaker inground soft EQ	FS360 Mono Full Range	FS360 Mono Full Range	FS360 Mono Full Range	FS360 Mono Full Range
FS360 DECK	FS360 loudspeaker deck EQ	FS360 Mono Full Range	FS360 Mono Full Range	FS360 Mono Full Range	FS360 Mono Full Range

13.2 Bose® Speaker EQ Preset List – Stereo Bank

PANARAY® 402[□] Series I loudspeaker Stereo Presets	402 Series I loudspeaker Preset Descriptions	Output 1	Output 2	Output 3	Output 4
402I	402 Series I loudspeaker Full Range EQ	402I CH1/Full Range	402I CH2/Full Range	402I CH1/Full Range	402I CH2/Full Range
402I+502B	402 Series I loudspeaker bi-amped with 502 [□] B loudspeaker	402I CH1/High	402I CH2/High	502B CH1/Low	502B CH2/Low
402I+MB4	402 Series I loudspeaker bi-amped with MB4	402I CH1/High	402I CH2/High	MB4 CH1/Low	MB4 CH2/Low
402I+AWCS	402 Series I loudspeaker bi-amped with AWCS Note: Limiting is assigned to outputs 3 and 4 for protection of the AWCS	402I CH1/High	402I CH2/High	AWCS CH1/Low	AWCS CH2/Low
402I HF	402 Series I loudspeaker bi-amped @ 160Hz	402I CH1/High	402I CH2/High	402I CH1/High	402i CH2/High
Panaray 402[□] Series II loudspeaker Stereo Presets	402 Series II loudspeaker Preset Descriptions	Output 1	Output 2	Output 3	Output 4
402II	402 Series II loudspeaker Full Range EQ	402II CH1/Full Range	402II CH2/Full Range	402II CH1/Full Range	402II CH2/Full Range
402II+502B	402 Series II loudspeaker bi-amped with 502B loudspeaker	402II CH1/High	402II CH2/High	502B CH1/Low	502B CH2/Low
402II+502BEX	402 Series II loudspeaker bi-amped with 502 [□] BEX loudspeaker	402II CH1/High	402II CH2/High	502BEX CH1/Low	502BEX CH2/Low
402II+MB4	402 Series II loudspeaker bi-amped with MB4	402II CH1/High	402II CH2/High	MB4 CH1/Low	MB4 CH2/Low
402II+AWCS	402 Series II loudspeaker bi-amped with AWCS Note: Limiting is assigned to outputs 3 and 4 for protection of the AWCS	402II CH1/High	402II CH2/High	AWCS CH1/Low	AWCS CH2/Low
402II HF	402 Series II loudspeaker bi-amped @ 180Hz	402II CH1/High	402II CH2/High	402II CH1/High	402II CH2/High

Bose® Speaker EQ Preset List – Stereo Bank

PANARAY 502² A loudspeaker Stereo Presets	502A loudspeaker Preset Descriptions	Output 1	Output 2	Output 3	Output 4
502A	502A loudspeaker Full Range EQ	502A CH1/Full Range	502A CH2/Full Range	502A CH1/Full Range	502A CH2/Full Range
502A+502B	502A loudspeaker bi-amped with 502B	502A CH1/High	502A CH2/High	502B CH1/Low	502B CH2/Low
502A+MB4	502A loudspeaker bi-amped with MB4	502A CH1/High	502A CH2/High	MB4 CH1/Low	MB4 CH2/Low
502A+AWCS	502A loudspeaker bi-amped with AWCS Note: Limiting is assigned to outputs 3 and 4 for protection of the AWCS	502A CH1/High	502A CH2/High	AWCS CH1/Low	AWCS CH2/Low
502A HF	502A loudspeaker bi-amped @ 160Hz	502A CH1/High	502A CH2/High	502A CH1/High	502A CH2/High
PANARAY 802² Series II loudspeaker Stereo Presets					
802 Series II loudspeaker Preset Descriptions	802 Series II loudspeaker Preset Descriptions	Output 1	Output 2	Output 3	Output 4
802II	802 Series II loudspeaker Full Range EQ	802II CH1/Full Range	802II CH2/Full Range	802II CH1/Full Range	802II CH2/Full Range
802II+502B	802 Series II loudspeaker bi-amped with 502B loudspeaker	802II CH1/High	802II CH2/High	502B CH1/Low	502B CH2/Low
802II+MB4	802 Series II loudspeaker bi-amped with MB4	802II CH1/High	802II CH2/High	MB4 CH1/Low	MB4 CH2/Low
802II+AWCS	802 Series II loudspeaker bi-amped with AWCS Note: Limiting is assigned to outputs 3 and 4 for protection of the AWCS	802II CH1/High	802II CH2/High	AWCS CH1/Low	AWCS CH2/Low
802II HF	802 Series II loudspeaker bi-amped @ 112Hz	802II CH1/High	802II CH2/High	802II CH1/High	802II CH2/High
802IISTK	Stacked 802 Series II loudspeaker EQ	802II CH1/Full Range	802II CH2/Full Range	802II CH1/Full Range	802II CH2/Full Range
802IISTK+502B	Stacked 802 Series II loudspeakers bi- amped with 502B loudspeaker	802II CH1/High	802II CH2/High	502B CH1/Low	502B CH2/Low
802IISTK+MB4	Stacked 802 Series II loudspeakers bi- amped with MB4	802II CH1/High	802II CH2/High	MB4 CH1/Low	MB4 CH2/Low

13.2 Bose® Speaker EQ Preset List – Stereo Bank

PANARAY 802[□] Series II loudspeaker Stereo Presets	802 Series II loudspeaker Preset Descriptions	Output 1	Output 2	Output 3	Output 4
802IISTK+AWCS	Stacked 802 Series II loudspeakers bi-amped with AWCS Note: Limiting is assigned to outputs 3 and 4 for protection of the AWCS	802II CH1/High	802II CH2/High	AWCS CH1/Low	AWCS CH2/Low
802IISTK HF	Stacked 802 Series II loudspeakers bi-amped @ 112Hz	802II CH1/High	802II CH2/High	802II CH1/High	802II CH2/High
PANARAY 802[□] Series III loudspeaker Stereo Presets	802 Series III loudspeaker Preset Descriptions	Output 1	Output 2	Output 3	Output 4
802III	802 Series III loudspeaker Full Range EQ	802III CH1/Full Range	802III CH2/Full Range	802III CH1/Full Range	802III CH2/Full Range
802III+502B	802 Series III loudspeaker bi-amped with 502 [□] B loudspeaker	802III CH1/High	802III CH2/High	502B CH1/Low	502B CH2/Low
802III+502BEX	802 Series III loudspeaker bi-amped with 502BEX loudspeaker	802III CH1/High	802III CH2/High	502BEX CH1/Low	502BEX Ch2/Low
802III+MB4	802 Series III loudspeaker bi-amped with MB4	802III CH1/High	802III CH2/High	MB4 CH1/Low	MB4 CH2/Low
802III+AWCS	802 Series III loudspeaker bi-amped with AWCS Note: Limiting is assigned to outputs 3 and 4 for protection of the AWCS	802III CH1/High	802III CH2/High	AWCS CH1/Low	AWCS CH2/Low
802III HF	802 Series III loudspeaker bi-amped @ 125Hz	802III CH1/High	802III CH2/High	802III CH1/High	802III CH2/High
802IIIST	Stacked 802 Series III loudspeaker EQ	802III CH1/Full Range	802III CH2/Full Range	802III CH1/Full Range	802III CH2/Full Range
802IIIST+502B	Stacked 802 Series III loudspeakers bi-amped with 502B	802III CH1/High	802III CH2/High	502B CH1/Low	502B CH2/Low
802IIIST+502X	Stacked 802 Series III loudspeakers bi-amped with 502BEX	802III CH1/High	802III CH2/High	502BEX CH1/Low	502BEX CH2/Low
802IIISTK+MB4	Stacked 802 Series III loudspeakers bi-amped with MB4	802III CH1/High	802III CH2/High	MB4 CH1/Low	MB4 CH2/Low

Bose® Speaker EQ Preset List – Stereo Bank

PANARAY 802 Series III loudspeaker Stereo Presets	802 Series III loudspeaker Preset Descriptions	Output 1	Output 2	Output 3	Output 4
802IIISTK+AWCS	Stacked 802 Series III loudspeaker bi-amped with AWCS Note: Limiting is assigned to outputs 3 and 4 for protection of the AWCS	802III CH1/High	802III CH2/High	AWCS CH1/Low	AWCS CH2/Low
802IIISTK HP	Stacked 802 Series III loudspeaker bi-amped @ 125 Hz	802III CH1/High	802III CH2/High	802III CH1/High	802III CH2/High
PANARAY MA12 loudspeaker Stereo Presets	MA12 loudspeaker Preset Descriptions	Output 1	Output 2	Output 3	Output 4
MA12 WALL	MA12 loudspeaker Full Range, Wall Mount, EQ Curve	MA12 CH1/Full Range	MA12 CH2/Full Range	MA12 CH1/Full Range	MA12 CH2/Full Range
MA12 FREE	MA12 loudspeaker Full Range, Free Field, EQ Curve	MA12 CH1/Full Range	MA12 CH2/Full Range	MA12 CH1/Full Range	MA12 CH2/Full Range
MA12+502B	MA12 loudspeaker bi-amped with 502 ^B B loudspeaker	MA12 CH1/High	MA12 CH2/High	502B CH1/Low	502B CH2/Low
MA12+MB4	MA12 loudspeaker bi-amped with MB4	MA12 CH1/High	MA12 CH2/High	MB4 CH1/Low	MB4 CH2/ Low
MA12 HF	MA12 loudspeaker bi-amped @ 160 Hz	MA12 CH1/High	MA12 CH2/High	MA12 Mono High	MA12 Mono High
MA12STK WALL	Stacked MA12 loudspeaker Full Range, Wall Mount, EQ Curve	MA12 CH1/Full Range	MA12 CH2/Full Range	MA12 CH1/Full Range	MA12 CH2/Full Range
MA12STK FREE	Stacked MA12 loudspeaker Full Range, Free Field, EQ Curve	MA12 CH1/Full Range	MA12 CH2/Full Range	MA12 CH1/Full Range	MA12 CH2/Full Range
MA12STK+502B	Stacked loudspeaker bi-amped with 502B loudspeaker	MA12 CH1/High	MA12 CH2/High	502B CH1/Low	502B CH2/Low
MA12STK+MB4	Stacked MA12 loudspeaker bi-amped with MB4	MA12 CH1/High	MA12 CH2/High	MB4 CH1/Low	MB4 CH2/Low
MA12STK HF	Stacked MA12 loudspeaker bi-amped @ 160Hz	MA12 CH1/High	MA12 CH2/High	MA12 CH1/High	MA12 CH2/High

Bose® Speaker EQ Preset List – Stereo Bank

PANARAY® MB4 loudspeaker Stereo Presets	MB4 loudspeaker Preset Descriptions	Output 1	Output 2	Output 3	Output 4
MB4 100Hz LP	MB4 loudspeaker 100Hz Low Pass	MB4/CH1	MB4/CH2	MB4/CH1	MB4/CH2
MB4 160Hz LP	MB4 loudspeaker 160Hz Low Pass	MB4/CH1	MB4/CH2	MB4/CH1	MB4/CH2
MB4 200Hz LP	MB4 loudspeaker 200Hz Low Pass	MB4/CH1	MB4/CH2	MB4/CH1	MB4/CH2
MB4 280Hz LP	MB4 loudspeaker 280Hz Low Pass	MB4/CH1	MB4/CH2	MB4/CH1	MB4/CH2
PANARAY 502® B loudspeaker Mono Presets					
502B loudspeaker Preset Descriptions	Output 1	Output 2	Output 3	Output 4	Output 4
502B	502B loudspeaker Mono Low Pass @ 160 Hz	502B/CH1	502B/CH2	502B/CH1	502B/CH2
PANARAY 502® BEX loudspeaker Stereo Presets					
502BEX loudspeaker Preset Descriptions	Preset	Output 1	Output 2	Output 3	Output 4
502BEX	502BEX loudspeaker Mono Low Pass @ 200 Hz	502BEX/ CH1	502BEX/ CH2	502BEX/ CH1	502BEX/ CH2
AWCS Stereo Presets					
AWCS Preset Descriptions	Output 1	Output 2	Output 3	Output 4	Output 4
AWCS	AWCS Mono Low Pass with limiting assigned to all four outputs	AWCS/CH1	AWCS/CH2	AWCS/CH1	AWCS/CH2
PANARAY LT3202® Stereo Presets					
LT3202 loudspeaker Preset Descriptions	Output 1	Output 2	Output 3	Output 4	Output 4
LT3202	LT3202 loudspeaker Full Range EQ	LT3202 CH1 Full Range	LT3202 CH2 Full Range	LT3202 CH1 Full Range	LT3202 CH2 Full Range
LT3202CLUSTER	LT3202 loudspeaker Cluster EQ	LT3202 CH1 Full Range	LT3202 CH2 Full Range	LT3202 CH1 Full Range	LT3202 CH2 Full Range
LT3202+MB4	LT3202 loudspeaker bi-amped with MB4	LT3202 CH1/High	LT3202 CH2/High	MB4 CH1/Low	MB4 CH2/Low
LT3202+502BEX	LT3202 loudspeaker bi-amped with 502BEX loudspeaker	LT3202 CH1/High	LT3202 CH2/High	502BEX CH1/Low	502BEX CH2/Low

Bose® Speaker EQ Preset List – Stereo Bank

PANARAY[®] LT4402² loudspeaker Mono Presets	LT4402 loudspeaker Preset Descriptions	Output 1	Output 2	Output 3	Output 4
LT4402	LT4402 loudspeaker Full Range EQ	LT4402 Mono Full Range	LT4402 Mono Full Range	LT4402 Mono Full Range	LT4402 Mono Full Range
LT4402CLUSTER	LT4402 Cluster EQ	LT4402 Mono Full Range	LT4402 Mono Full Range	LT4402 Mono Full Range	LT4402 Mono Full Range
LT4402+MB4	LT4402 loudspeaker bi-amped with MB4	LT4402 Mono High	LT4402 Mono High	MB4 Mono Low	MB4 Mono Low
LT4402+502BEX	LT4402 loudspeaker bi-amped with 502 ² BEX loudspeaker	LT4402 Mono High	LT4402 Mono High	502BEX Mono Low	502BEX Mono Low
PANARAY LT9702² loudspeaker Mono Presets					
PANARAY LT9702² loudspeaker Mono Presets	LT9702 loudspeaker Preset Descriptions	Output 1	Output 2	Output 3	Output 4
LT9702	LT9702 loudspeaker Full Range EQ	LT9702 Mono Full Range	LT9702 Mono Full Range	LT9702 Mono Full Range	LT9702 Mono Full Range
LT9702CLUSTER	LT9702 Cluster EQ	LT9702 Mono Full Range	LT9702 Mono Full Range	LT9702 Mono Full Range	LT9702 Mono Full Range
LT9702+MB4	LT9702 loudspeaker bi-amped with MB4	LT9702 Mono High	LT9702 Mono High	MB4 Mono Low	MB4 Mono Low
LT9702+502BEX	LT9702 loudspeaker bi-amped with 502BEX loudspeaker	LT9702 Mono High	LT9702 Mono High	502BEX Mono Low	502BEX Mono Low
FreeSpace[®] Model 8 loudspeaker Mono Presets					
FreeSpace[®] Model 8 loudspeaker Mono Presets	Model 8 loudspeaker Preset Descriptions	Output 1	Output 2	Output 3	Output 4
M8	Model 8 loudspeaker Full Range EQ	M8 Mono Full Range	M8 Mono Full Range	M8 Mono Full Range	M8 Mono Full Range
M8+MB4	Model 8 loudspeaker bi-amped with MB4	M8 Mono High	M8 Mono High	MB4 Mono Low	MB4 Mono Low
M8+FS3	Model 8 loudspeaker bi-amped with FreeSpace [®] 3 loudspeaker	M8 Mono High	M8 Mono High	FS3 Mono Low	FS3 Mono Low
M8+FS1B	Model 8 loudspeaker bi-amped with FreeSpace 1B loudspeaker	M8 Mono High	M8 Mono High	FS1B Mono Low	FS1B Mono Low

Bose® Speaker EQ Preset List – Stereo Bank

FreeSpace[®] Model 32 loudspeaker Mono Presets	Model 32 loudspeaker Preset Descriptions	Output 1	Output 2	Output 3	Output 4
M32	Model 32 loudspeaker Full Range EQ	M32 Mono Full Range	M32 Mono Full Range	M32 Mono Full Range	M32 Mono Full Range
M32+MB4	Model 32 loudspeaker bi-amped with MB4	M32 Mono High	M32 Mono High	MB4 Mono Low	MB4 Mono Low
M32+FS3	Model 32 loudspeaker bi-amped with FS3	M32 Mono High	M32 Mono High	FS3 Mono Low	FS3 Mono Low
M32+FS1B	Model 32 loudspeaker bi-amped with FS1B	M32 Mono High	M32 Mono High	FS1B Low	FS1B Low
M32+502BEX	Model 32 loudspeaker bi-amped with 502 [®] BEX loudspeaker	M32 Mono High	M32 Mono High	502BEX Mono Low	502BEX Mono Low
FreeSpace Model 1B loudspeaker Mono Presets					
FreeSpace Model 1B loudspeaker Mono Presets	FreeSpace Model 1B loudspeaker Preset Descriptions	Output 1	Output 2	Output 3	Output 4
FS1B 100Hz LP	FreeSpace Model 1B loudspeaker 100Hz Low Pass	FS1B	FS1B	FS1B	FS1B
FS1B SURFACE	FreeSpace Model 1B loudspeaker Surface Mount EQ	FS1B	FS1B	FS1B	FS1B
FS1B FLUSH	FreeSpace Model 1B loudspeaker Flush Mount EQ	FS1B	FS1B	FS1B	FS1B
FreeSpace 3 Bass Mono Presets					
FreeSpace 3 Bass Mono Presets	FreeSpace 3 Bass Preset Descriptions	Output 1	Output 2	Output 3	Output 4
FS3 100Hz LP	FreeSpace 3 Bass 100Hz Low Pass	FS3	FS3	FS3	FS3
FS3 150Hz LP	FreeSpace 3 Bass 150Hz Low Pass	FS3	FS3	FS3	FS3
FreeSpace 360 Mono Presets					
FreeSpace 360 Mono Presets	FreeSpace 360 loudspeaker Preset Descriptions	Output 1	Output 2	Output 3	Output 4
FS360 HARD	FS360 loudspeaker inground hard EQ	FS360 Mono Full Range	FS360 Mono Full Range	FS360 Mono Full Range	FS360 Mono Full Range
FS360 SOFT	FS360 loudspeaker inground soft EQ	FS360 Mono Full Range	FS360 Mono Full Range	FS360 Mono Full Range	FS360 Mono Full Range
FS360 DECK	FS360 loudspeaker deck EQ	FS360 Mono Full Range	FS360 Mono Full Range	FS360 Mono Full Range	FS360 Mono Full Range

Bose® Speaker EQ Preset List – Bass Array Bank

PANARAY [®] MB4 Bass Array Presets	MB4 Bass Array Preset Descriptions	Output 1	Output 2	Output 3	Output 4
MB4 2xBS180Hz	The MB4 2x broadside bass array preset provides 360 degree horizontal coverage with a 10 to 15 dB suppression in energy going up and down from 80 - 200Hz. The crossover is set at 180Hz and is recommended for use with MA12, MB4 and 02 Series speakers.	MB4/Mono	MB4/Mono	N/A	N/A
MB4 2xBS280Hz	The MB4 2x broadside bass array preset provides 360 degree horizontal coverage with a 10 to 15 dB suppression in energy going up and down from 80 - 200Hz. The crossover is set at 280Hz and is recommended for use with the LT Series.	MB4/Mono	MB4/Mono	N/A	N/A
MB4 2xEF180Hz	The MB4 2x endfire bass array preset provides 180 degree conical dispersion @ 160Hz. The crossover is set at 180Hz and is recommended for use with MA12, MB4 and 02 Series speakers.	MB4/Mono	MB4/Mono	N/A	N/A
MB4 2xEF280Hz	The MB4 2x endfire bass array preset provides 180 degree conical dispersion @ 160Hz. The crossover is set at 280Hz and is recommended for use with MA12, MB4 and LT Series speakers.	MB4/Mono	MB4/Mono	N/A	N/A
MB4 4xEF280Hz	The MB4 4x endfire bass array preset provides 120 degree conical dispersion @ 160Hz. The crossover is set at 280Hz and is recommended for use with MA12, MB4 and LT Series speakers.	MB4/Mono	MB4/Mono	MB4/Mono	MB4/Mono
MB4 4xEF180Hz	The MB4 4x endfire bass array preset provides 120 degree conical dispersion @ 160Hz. The crossover is set at 180Hz and is recommended for use with MA12, MB4 and 02 Series speakers.	MB4/Mono	MB4/Mono	MB4/Mono	MB4/Mono

14.0 Technical Information

Sample Rate

44.1kHz

Analog Inputs:**Connectors**

(2) XLR balanced

Impedance balanced

21k Ω

Input level

Maximum: +18dBu

Minimum: 0dBu

Sensitivity

@9dB headroom: -12dBu to +9dBu

A to D conversion

24 bit, 128x oversampling bitstream

Dynamic range

95dB typ, 20Hz - 20kHz

THD

Typ < 92dB (0.0025%) @ 1kHz

Frequency response

20Hz to 20kHz, +0/-0.1dB

Crosstalk

< -100dB, 20Hz to 20kHz

Analog Outputs:**Connectors**

(4) XLR balanced

Impedance balanced

40 Ω

Maximum output level

+18dBu (balanced)

Output ranges

Balanced 20/14/8/2dBu

D to A conversion

24 bit, 128x oversampling bitstream

D to A Delay

0.63ms @ 44.1kHz

Dynamic range

100dB typ 20Hz - 20kHz

THD

Typ < 94dB (0.002%) @ 1kHz +20dBu output

Frequency response

20Hz to 20kHz: +0/-0.5dB

Crosstalk

< -95dB, 20Hz to 20kHz

Environment:**Operating temperature**

32°F to 122°F (0°C to 50°C)

Storage temperature

-22°F to 167°F (-30°C to 70°C)

Humidity

Maximum 90% non-condensing

Control interface:**Finish**

Black anodized aluminum front-plated and painted steel chassis

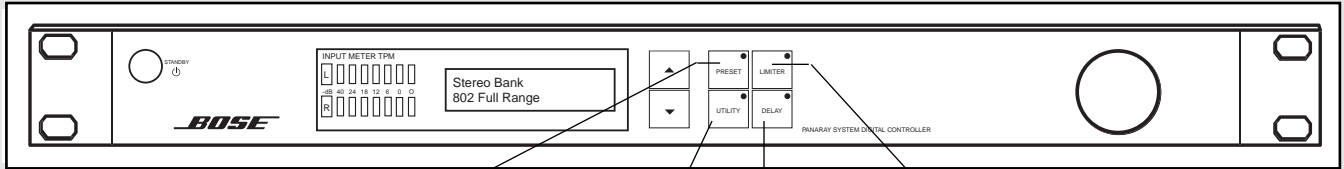
Mains voltage

100 to 240VAC, 50Hz to 60Hz (auto switching)

Power consumption

< 15W

Appendix: PANARAY® System Digital Controller Quick-Reference Guide



PRESET Button

180 Speaker EQ presets sorted into Mono, Stereo, and Bass Array Banks

UTILITY Button

Output level
Output range
Input sensitivity
Input trim CH1
Input trim CH2
Output route 1
Output route 2
Output route 3
Output route 4
Delay units
Delay master
Limiter master
Input configuration
Custom presets
Input configuration
Custom presets
View angle

DELAY Button

Delay 1 On/Off
Delay 2 On/Off
Delay 3 On/Off
Delay 4 On/Off
Delay Time 1
Delay Time 2
Delay Time 3

LIMITER Button

Lim1 On/Off
Lim2 On/Off
Lim3 On/Off
Lim4 On/Off
Lim1 Threshold (L1)
Lim1 Ratio (L1)
Lim1 Attack (L1)
Lim1 Release (L1)
Lim1 Gain (L1)
Lim2 Threshold (L2)
Lim2 Ratio (L2)
Lim2 Attack (L2)
Lim2 Release (L2)
Lim2 Gain (L2)
Lim3 Threshold (L3)
Lim3 Ratio (L3)
Lim3 Attack (L3)
Lim3 Release (L3)
Lim3 Gain (L3)
Lim4 Threshold (L4)
Lim4 Ratio (L4)
Lim4 Attack (L4)
Lim4 Release (L4)
Lim4 Gain (L4)

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