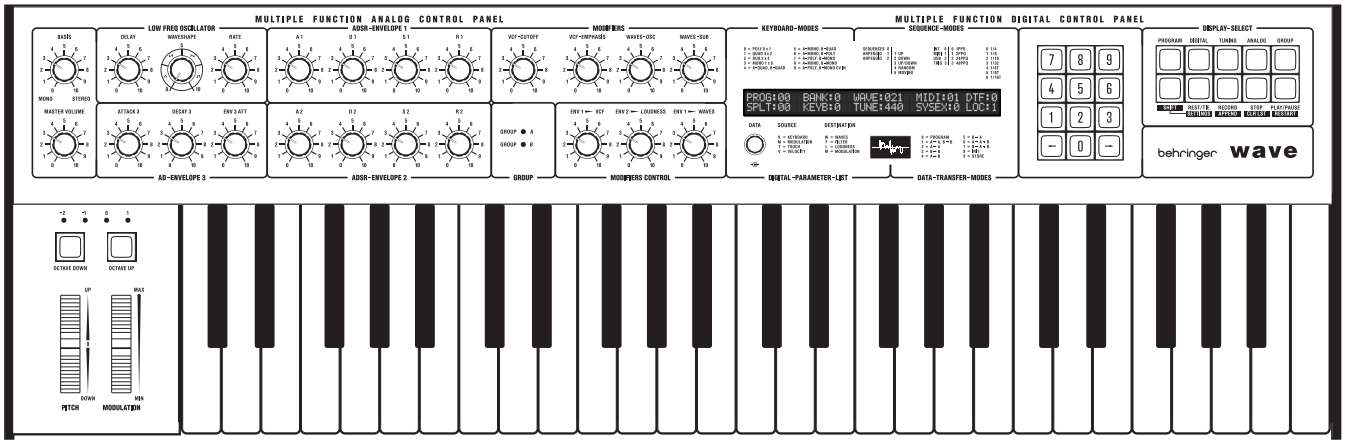
User Manual

EN



WAVE

Legendary 8-Voice Multi-Timbral Hybrid Synthesizer with Wavetable Generators and Analog VCF and VCA, LFO, 3 Envelopes, Arpeggiator and Sequencer

Firmware v1.5 users: see the Firmware v1.5 Addendum starting on page 51. The Bank 0 program list in the Addendum supersedes the list on pages 30-31.

V1.0 (Firmware 1.0.11 April 2025)

behringer

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EN Important Safety Instructions





Terminals marked with this symbol carry electrical current of sufficient magnitude to constitute risk of electric shock. Use only high-quality professional speaker cables with ¼" TS or twist-locking plugs pre-installed. All other installation or modification should be performed only by qualified personnel.



This symbol, wherever it appears, alerts you to the presence of uninsulated dangerous voltage inside the enclosure - voltage that may be sufficient to constitute a risk of shock.



This symbol, wherever it appears, alerts you to important operating and maintenance instructions in the accompanying literature. Please read the manual.



Caution

To reduce the risk of electric shock, do not remove the top cover (or the rear section). No user serviceable parts inside. Refer servicing to qualified personnel.



Caution

To reduce the risk of fire or electric shock, do not expose this appliance to rain and moisture. The apparatus shall not be exposed to dripping or splashing liquids and no objects filled with liquids, such as vases, shall be placed on the apparatus.



Caution

These service instructions are for use by qualified service personnel only. To reduce the risk of electric shock do not perform any servicing other than that contained in the operation instructions. Repairs have to be performed by qualified service personnel.



Warning

Please refer to the information on the exterior of bottom enclosure for electrical and safety information before installing or operating the device.

1. Please read and follow all instructions and warnings.

2. Keep the apparatus away from water (except for outdoor products).

3. Clean only with dry cloth.

4. Do not block ventilation openings. Do not install in a confined space. Install only according to manufacturer's instructions.

5. Protect the power cord from damage, particularly at plugs and appliance socket.

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 polarized or grounding-type plug. A polarized plug has two blades with one wider than the other (only for USA and Canada). A grounding-type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.

8. Use only attachments and accessories recommended by the manufacturer.



9. Use only specified carts, stands, tripods, brackets, or tables. Use caution to prevent tip-over when moving the cart/ apparatus combination.

10. Unplug during storms, or if not in use for a long period.

11. Only use qualified personnel for servicing, especially after damage.

12. The apparatus with protective earthing terminal shall be connected to a MAINS socket outlet with a protective earthing connection.

13. Where the MAINS plug or an appliance coupler is used as the disconnect device, the disconnect device shall remain readily operable.

14. Avoid installing in confined spaces like bookcases.

15. Do not place naked flame sources, such as lighted candles, on the apparatus.

16. Operating temperature range 5° to 45°C (41° to 113°F).

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Please retain your proof of purchase, as it may be required for warranty service.

ES

FR

ES Instrucciones de seguridad





Las terminales marcadas con este símbolo transportan corriente eléctrica de magnitud suficiente como para constituir un riesgo de descarga eléctrica. Utilice solo cables de altavoz profesionales y de alta calidad con conectores TS de 6,3 mm o de bayoneta prefijados. Cualquier otra instalación o modificación debe ser realizada únicamente por un técnico cualificado.



Este símbolo, siempre que aparece, le advierte de la presencia de voltaje peligroso sin aislar dentro de la caja; este voltaje puede ser suficiente para constituir un riesgo de descarga.



Este símbolo, siempre que aparece, le advierte sobre instrucciones operativas y de mantenimiento que aparecen en la documentación adjunta. Por favor, lea el manual.



Atención
Para reducir el riesgo de descarga eléctrica, no quite la tapa (o la parte posterior). No hay piezas en el interior del equipo que puedan ser reparadas por el usuario. Si es necesario, póngase en contacto con personal cualificado.



Atención
Para reducir el riesgo de incendio o descarga eléctrica, no exponga este aparato a la lluvia, humedad o alguna otra fuente que pueda salpicar o derramar algún líquido sobre el aparato. No coloque ningún tipo de recipiente para líquidos sobre el aparato.



Atención
Las instrucciones de servicio deben llevarlas a cabo exclusivamente personal cualificado. Para evitar el riesgo de una descarga eléctrica, no realice reparaciones que no se encuentren descritas en el manual de operaciones. Las reparaciones deben ser realizadas exclusivamente por personal cualificado.



Advertencia
Consulte la información en el exterior del recinto inferior para obtener información eléctrica y de seguridad antes de instalar u operar el dispositivo.

1. Por favor, lea y siga todas las instrucciones y advertencias.

2. Mantenga el aparato alejado del agua (excepto para productos diseñados para uso en exteriores).

3. Limpie solo con un paño seco.

4. No obstruya las aberturas de ventilación. No instale en un espacio confinado. Instale solo de acuerdo con las instrucciones del fabricante.

5. Proteja el cable de alimentación contra daños, especialmente en los enchufes y en el tomacorriente del aparato.

6. No lo instale cerca de fuentes de calor como radiadores, rejillas de calefacción, estufas u otros aparatos (incluyendo amplificadores) que generen calor.

7. No anule el propósito de seguridad del enchufe polarizado o del tipo con toma de tierra. Un enchufe polarizado tiene dos clavijas, una más ancha que la otra (solo para EE. UU. y Canadá). Un enchufe con toma de tierra tiene dos clavijas y una tercera clavija de toma de tierra. La clavija ancha o la tercera clavija se proporcionan para su seguridad. Si el enchufe suministrado no encaja en su toma de corriente, consulte a un electricista para reemplazar la toma obsoleta.

8. Utilice solo accesorios y accesorios recomendados por el fabricante.



9. Utilice solo carritos, soportes, trípodes, soportes o mesas especificados. Tenga cuidado para evitar que el carro/ combinación de aparatos se vuelque al moverlo.

10. Desenchufe durante tormentas o si no se utiliza durante un largo período.

11. Solo utilice personal cualificado para el servicio, especialmente después de daños.

12. El aparato con terminal de puesta a tierra protectora debe conectarse a un tomacorriente de red con una conexión de puesta a tierra protectora.

13. Cuando se utilice el enchufe de red o un acoplador de aparatos como dispositivo de desconexión, el dispositivo de desconexión debe seguir siendo fácilmente operable.

14. Evite la instalación en espacios confinados como estanterías.

15. No coloque fuentes de llama desnuda, como velas encendidas, en el aparato.

16. Rango de temperatura de funcionamiento de 5° a 45°C (41° a 113°F).

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Conserve su comprobante de compra, ya que puede ser necesario para el servicio de garantía.

FR Consignes de sécurité





Les points repérés par ce symbole portent une tension électrique suffisante pour constituer un risque d'électrocution. Utilisez uniquement des câbles d'enceintes professionnels de haute qualité avec fiches Jack mono 6,35 mm ou fiches à verrouillages déjà installées. Toute autre installation ou modification doit être effectuée uniquement par un personnel qualifié.



Ce symbole avertit de la présence d'une tension dangereuse et non isolée à l'intérieur de l'appareil - elle peut provoquer des chocs électriques.



Ce symbol signale les consignes d'utilisation et d'entretien importantes dans la documentation fournie. Lisez les consignes de sécurité du manuel d'utilisation de l'appareil.



Attention
Pour éviter tout risque de choc électrique, ne pas ouvrir le capot de l'appareil ni démonter le panneau arrière. L'intérieur de l'appareil ne possède aucun élément réparable par l'utilisateur. Laisser toute réparation à un professionnel qualifié.



Attention
Pour réduire les risques de feu et de choc électrique, n'exposez pas cet appareil à la pluie, à la moisissure, aux gouttes ou aux éclaboussures. Ne posez pas de récipient contenant un liquide sur l'appareil (un vase par exemple).



Attention
Ces consignes de sécurité et d'entretien sont destinées à un personnel qualifié. Pour éviter tout risque de choc électrique, n'effectuez aucune réparation sur l'appareil qui ne soit décrite par le manuel d'utilisation. Les éventuelles réparations doivent être effectuées uniquement par un technicien spécialisé.



Avertissement
Veuillez vous référer aux informations situées à l'extérieur du boîtier inférieur pour obtenir les renseignements électriques et de sécurité avant d'installer ou d'utiliser l'appareil.

1. Veuillez lire et suivre toutes les instructions et avertissements.

2. Éloignez l'appareil de l'eau (sauf pour les produits conçus pour une utilisation en extérieur).

3. Nettoyez uniquement avec un chiffon sec.

4. Ne bloquez pas les ouvertures de ventilation. N'installez pas dans un espace confiné. Installez uniquement selon les instructions du fabricant.

5. Protégez le cordon d'alimentation contre les dommages, en particulier au niveau des fiches et de la prise de l'appareil.

6. N'installez pas près de sources de chaleur telles que radiateurs, registres de chaleur, cuisinières ou autres appareils (y compris les amplificateurs) qui produisent de la chaleur.

7. Ne contrecarrez pas le but de sécurité de la fiche polarisée ou de type mise à la terre. Une fiche polarisée a deux lames, l'une plus large que l'autre (uniquement pour les États-Unis et le Canada). Une fiche de type mise à la terre a deux lames et une troisième broche de mise à la terre. La lame large ou la troisième broche sont fournies pour votre sécurité. Si la fiche fournie ne s'adapte pas à votre prise, consultez un électricien pour remplacer la prise obsolète.

8. Utilisez uniquement des accessoires et des pièces recommandés par le fabricant.



9. Utilisez uniquement des chariots, des supports, des trépieds, des supports ou des tables spécifiés. Faites attention pour éviter le renversement lors du déplacement de la combinaison chariot/appareil.

10. Débranchez pendant les tempêtes ou si l'appareil n'est pas utilisé pendant une longue période.

11. Utilisez uniquement du personnel qualifié pour l'entretien, surtout après des dommages.

12. L'appareil avec une borne de mise à la terre protectrice doit être connecté à une prise secteur avec une connexion de mise à la terre protectrice.

13. Lorsque la fiche secteur ou un coupleur d'appareil est utilisé comme dispositif de déconnexion, le dispositif de déconnexion doit rester facilement utilisable.

14. Évitez l'installation dans des espaces confinés comme des bibliothèques.

15. Ne placez pas de sources de flamme nue, telles que des bougies allumées, sur l'appareil.

16. Plage de température de fonctionnement de 5° à 45°C (41° à 113°F).

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DE Wichtige Sicherheitshinweise



Die mit dem Symbol markierten Anschlüsse führen so viel Spannung, dass die Gefahr eines Stromschlags besteht. Verwenden Sie nur hochwertige, professionelle Lautsprecherkabel mit vorinstallierten 6,35 mm MONO-Klinkensteckern oder Lautsprecherstecker mit Drehverriegelung. Alle anderen Installationen oder Modifikationen sollten nur von qualifiziertem Fachpersonal ausgeführt werden.

Dieses Symbol weist Sie immer dann darauf hin, wenn es erscheint, dass im Inneren des Gehäuses gefährliche unisolierte Spannung vorhanden ist – eine Spannung, die ausreichend sein kann, um ein Stromschlagrisiko darzustellen.

Dieses Symbol weist Sie an jeder Stelle, an der es erscheint, auf wichtige Betriebs- und Wartungsanweisungen in der beiliegenden Literatur hin. Bitte lesen Sie die Bedienungsanleitung.

Vorsicht
Um eine Gefährdung durch Stromschlag auszuschließen, darf die Geräteabdeckung bzw. Geräterückwand nicht abgenommen werden. Im Innern des Geräts befinden sich keine vom Benutzer reparierbaren Teile. Reparaturarbeiten dürfen nur von qualifiziertem Personal ausgeführt werden.

Vorsicht
Um eine Gefährdung durch Feuer bzw. Stromschlag auszuschließen, darf dieses Gerät weder Regen oder Feuchtigkeit ausgesetzt werden noch sollten Spritzwasser oder tropfende Flüssigkeiten in das Gerät gelangen können. Stellen Sie keine mit Flüssigkeit gefüllten Gegenstände, wie z.B. Vasen, auf das Gerät.

Vorsicht
Die Service-Hinweise sind nur durch qualifiziertes Personal zu befolgen. Um eine Gefährdung durch Stromschlag zu vermeiden, führen Sie bitte keinerlei Reparaturen an dem Gerät durch, die nicht in der Bedienungsanleitung beschrieben sind. Reparaturen sind nur von qualifiziertem Fachpersonal durchzuführen.

Warnung
Bitte beachten Sie die Informationen auf der Außenseite der unteren Abdeckung bezüglich elektrischer und sicherheitstechnischer Hinweise, bevor Sie das Gerät installieren oder in Betrieb nehmen.

1. Bitte lesen Sie alle Anweisungen und Warnhinweise sorgfältig durch und befolgen Sie diese.

2. Halten Sie das Gerät von Wasser fern (außer bei Produkten für den Außenbereich).

3. Reinigen Sie nur mit einem trockenen Tuch.

4. Blockieren Sie nicht die Belüftungsöffnungen. Installieren Sie das Gerät nicht in einem engen Raum und nur gemäß den Anweisungen des Herstellers.

5. Schützen Sie das Netzkabel vor Beschädigungen, insbesondere an Steckern und Gerätebuchsen.

6. Installieren Sie das Gerät nicht in der Nähe von Wärmequellen wie Heizkörpern, Heizregistern, Öfen oder anderen Geräten (einschließlich Verstärkern), die Wärme erzeugen.

7. Verwenden Sie den polarisierten Stecker oder den Erdungsstecker nicht entgegen seiner Sicherheitsbestimmung. Ein polarisierter Stecker hat zwei Stifte, von denen einer breiter ist als der andere (nur für USA und Kanada). Ein Erdungsstecker hat zwei Stifte und einen Erdungsstift. Der breite Stift oder der dritte Erdungsstift dienen Ihrer Sicherheit. Wenn der mitgelieferte Stecker nicht in Ihre Steckdose passt, konsultieren Sie einen Elektriker, um die veraltete Steckdose zu ersetzen.

8. Verwenden Sie nur vom Hersteller empfohlene Anbaugeräte und Zubehörteile.



9. Verwenden Sie nur spezifizierte Wagen, Ständer, Stative, Halterungen oder Tische. Achten Sie darauf, dass der Wagen/Geräte-Kombination beim Bewegen nicht umkippt.

10. Ziehen Sie bei Gewittern oder bei längerer Nichtbenutzung den Stecker.

11. Lassen Sie nur qualifiziertes Personal für Wartungsarbeiten arbeiten, besonders nach Beschädigungen.

12. Das Gerät mit schützendem Erdungsterminal muss an eine Steckdose mit schützender Erdungsverbindung angeschlossen werden.

13. Wenn der Netzstecker oder ein Gerätekuppler als Trennvorrichtung verwendet wird, muss die Trennvorrichtung leicht bedienbar bleiben.

14. Vermeiden Sie die Installation in engen Räumen wie Bücherregalen.

15. Platzieren Sie keine offenen Flammenquellen, wie brennende Kerzen, auf dem Gerät.

16. Betriebstemperaturbereich von 5° bis 45°C (41° bis 113°F).

HAFTUNGSAUSSCHLUSS

Die Informationen in diesem Schnellstart-Handbuch und dem begleitenden Handbuch dienen ausschließlich als allgemeine Orientierung. Obwohl alle Anstrengungen unternommen wurden, um die Genauigkeit und Zuverlässigkeit der Inhalte zum Zeitpunkt der Veröffentlichung sicherzustellen, gibt Music Tribe Global Brands Ltd. („Music Tribe“) keine ausdrücklichen oder stillschweigenden Zusicherungen oder Garantien hinsichtlich der Vollständigkeit, Genauigkeit oder Eignung der hier enthaltenen Informationen, Beschreibungen, Abbildungen oder technischen Spezifikationen.

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Bitte bewahren Sie Ihren Kaufbeleg auf, da dieser für den Garantieservice erforderlich sein kann.

PT Instruções de Segurança Importantes





Terminais marcados com o símbolo carregam corrente elétrica de magnitude suficiente para constituir um risco de choque elétrico. Use apenas cabos de alto-falantes de alta qualidade com plugues TS de ¼" ou plugues com trava de torção pré-instalados. Todas as outras instalações e modificações devem ser efetuadas por pessoas qualificadas.



Este símbolo, onde quer que apareça, alerta para a presença de tensão perigosa não isolada dentro do invólucro - uma tensão que pode ser suficiente para constituir um risco de choque.



Este símbolo, onde quer que o encontre, alerta-o para a leitura das instruções de manuseamento que acompanham o equipamento. Por favor leia o manual de instruções.



Atenção
De forma a diminuir o risco de choque eléctrico, não remover a cobertura (ou a secção de trás). Não existem peças substituíveis por parte do utilizador no seu interior. Para esse efeito recorrer a um técnico qualificado.



Atenção
Para reduzir o risco de incêndios ou choques eléctricos o aparelho não deve ser exposto à chuva nem à humidade. Além disso, não deve ser sujeito a salpicos, nem devem ser colocados em cima do aparelho objectos contendo líquidos, tais como jarras.



Atenção
Estas instruções de operação devem ser utilizadas, em exclusivo, por técnicos de assistência qualificados. Para evitar choques eléctricos não proceda a reparações ou intervenções, que não as indicadas nas instruções de operação, salvo se possuir as qualifi-cações necessárias. Para evitar choques eléctricos não proceda a reparações ou intervenções, que não as indicadas nas instruções de operação. Só o deverá fazer se possuir as qualificações necessárias.



Aviso
Consulte as informações na parte externa do invólucro inferior para obter informações elétricas e de segurança antes de instalar ou operar o dispositivo.

1. Por favor, leia e siga todas as instruções e advertências.

2. Mantenha o aparelho longe da água (exceto para produtos destinados a uso externo).

3. Limpe apenas com um pano seco.

4. Não obstrua as aberturas de ventilação. Não instale em espaços confinados. Instale apenas de acordo com as instruções do fabricante.

5. Proteja o cabo de alimentação contra danos, especialmente nos plugs e na tomada do aparelho.

6. Não instale próximo a fontes de calor, como radiadores, registros de calor, fogões ou outros aparelhos (incluindo amplificadores) que produzam calor.

7. Não desfaça a finalidade de segurança da tomada polarizada ou do tipo com aterramento. Uma tomada polarizada possui duas lâminas, sendo uma mais larga que a outra (apenas para EUA e Canadá). Uma tomada com aterramento possui duas lâminas e uma terceira ponta de aterramento. A lâmina larga ou a terceira ponta são fornecidas para sua segurança. Se o plug fornecido não se encaixar na sua tomada, consulte um eletricista para substituir a tomada obsoleta.

8. Use apenas acessórios e equipamentos recomendados pelo fabricante.



9. Use apenas carrinhos, suportes, tripés, suportes ou mesas especificados. Tenha cuidado para evitar tombamentos ao mover a combinação carrinho/aparelho.

10. Desconecte durante tempestades ou se não estiver em uso por um longo período.

11. Use apenas pessoal qualificado para serviços, especialmente após danos.

12. O aparelho com terminal de aterramento protetor deve ser conectado a uma tomada de corrente com conexão de aterramento protetor.

13. Quando o plugue de corrente ou um acoplador de aparelho é usado como dispositivo de desconexão, o dispositivo de desconexão deve permanecer prontamente operável.

14. Evite instalar em espaços confinados, como estantes.

15. Não coloque fontes de chama nua, como velas acesas, no aparelho.

16. Faixa de temperatura de operação de 5° a 45°C (41° a 113°F).

LEGAL RENUNCIANTE

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Guarde o seu comprovante de compra, pois pode ser necessário para o serviço de garantia.

IT Informazioni importanti





I terminali contrassegnati da questo simbolo conducono una corrente elettrica di magnitudine sufficiente a costituire un rischio di scossa elettrica. Utilizzare solo cavi per altoparlanti professionali di alta qualità con jack sbilanciati da 6,35mm. o connettori con blocco a rotazione. Tutte le altre installazioni o modifiche devono essere eseguite esclusivamente da personale qualificato.



Questo simbolo, ovunque appaia, avverte della presenza di una tensione pericolosa non isolata all'interno dello chassis, tensione che può essere sufficiente per costituire un rischio di scossa elettrica.



Questo simbolo, ovunque appaia, segnala importanti istruzioni operative e di manutenzione nella documentazione allegata. Si invita a leggere il manuale.



Attenzione
Per ridurre il rischio di scosse elettriche, non rimuovere il coperchio superiore (o la sezione posteriore). All'interno non ci sono parti riparabili dall'utente. Per la manutenzione rivolgersi a personale qualificato.



Attenzione
Per ridurre il rischio di incendi o scosse elettriche, non esporre questo apparecchio a pioggia e umidità. L'apparecchio non deve essere esposto a gocciolio o schizzi di liquidi e nessun oggetto contenente liquidi, come vasi, deve essere collocato sull'apparecchio.



Attenzione
Queste istruzioni di servizio sono destinate esclusivamente a personale qualificato. Per ridurre il rischio di scosse elettriche non eseguire interventi di manutenzione diversi da quelli contenuti nel manuale di istruzioni. Le riparazioni devono essere eseguite da personale di assistenza qualificato.



Avvertimento
Consultare le informazioni sulla parte esterna dell'involucro inferiore per ottenere informazioni elettriche e di sicurezza prima di installare o utilizzare il dispositivo.

1. Si prega di leggere e seguire tutte le istruzioni e gli avvertimenti.

2. Mantenere l'apparecchio lontano dall'acqua (tranne che per i prodotti destinati all'uso all'aperto).

3. Pulire solo con un panno asciutto.

4. Non ostruire le aperture di ventilazione. Non installare in spazi ristretti. Installare solo secondo le istruzioni del produttore.

5. Proteggere il cavo di alimentazione dai danni, soprattutto alle spine e alla presa dell'elettrodomestico.

6. Non installare vicino a fonti di calore come termosifoni, bocchette di calore, fornelli o altri apparecchi (compresi gli amplificatori) che producono calore.

7. Non eludere lo scopo di sicurezza della spina polarizzata o della spina con messa a terra. Una spina polarizzata ha due lame di cui una più larga dell'altra (solo per USA e Canada). Una spina con messa a terra ha due lame e una terza spina di messa a terra. La lama larga o la terza spina sono fornite per la vostra sicurezza. Se la spina fornita non si adatta alla vostra presa, consultare un elettricista per la sostituzione della presa obsoleta.

8. Utilizzare solo accessori e attrezzature raccomandati dal produttore.



9. Utilizzare solo carrelli, supporti, treppiedi, staffe o tavoli specificati. Prestare attenzione per evitare il ribaltamento durante lo spostamento della combinazione carrello/apparecchio.

10. Scollegare durante le tempeste o se non viene utilizzato per un lungo periodo.

11. Utilizzare solo personale qualificato per la manutenzione, specialmente dopo danni.

12. L'apparecchio con terminale di messa a terra protettiva deve essere collegato a una presa di corrente con connessione di messa a terra protettiva.

13. Se la spina di rete o un accoppiatore dell'elettrodomestico viene utilizzato come dispositivo di disconnessione, il dispositivo di disconnessione deve rimanere facilmente utilizzabile.

14. Evitare l'installazione in spazi ristretti come librerie.

15. Non posizionare fonti di fiamma nuda, come candele accese, sull'apparecchio.

16. Intervallo di temperatura di funzionamento da 5° a 45°C (da 41° a 113°F).

DISCLAIMER LEGALE

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Conserva la prova d'acquisto, poiché potrebbe essere richiesta per il servizio di garanzia.

NL Belangrijke veiligheidsvoorschriften



Aansluitingen die gemerkt zijn met het symbool voeren een zodanig hoge spanning dat ze een risico vormen voor elektrische schokken. Gebruik uitsluitend kwalitatief hoogwaardige, in de handel verkrijgbare luidsprekerkabels die voorzien zijn van ¼" TS stekkers. Laat uitsluitend gekwalificeerd personeel alle overige installatie- of modificatiehandelingen uitvoeren.

Dit symbool waarschuwt u, waar het ook verschijnt, voor de aanwezigheid van ongeïsoleerde gevaarlijke spanning binnenin de behuizing - spanning die voldoende kan zijn om een risico op elektrische schokken te vormen.

Dit symbool wijst u altijd op belangrijke bedienings - en onderhoudsvoorschriften in de bijbehorende documenten. Wij vragen u dringend de handleiding te lezen.

Attentie
Verwijder in geen geval de bovenste afdekking (van het achterste gedeelte) anders bestaat er gevaar voor een elektrische schok. Het apparaat bevat geen te onderhouden onderdelen. Reparatiewerkzaamheden mogen uitsluitend door gekwalificeerd personeel uitgevoerd worden.

Attentie
Om het risico op brand of elektrische schokken te beperken, dient u te voorkomen dat dit apparaat wordt blootgesteld aan regen en vocht. Het apparaat mag niet worden blootgesteld aan neerdruppelend of opspattend water en er mogen geen met water gevulde voorwerpen – zoals een vaas – op het apparaat worden gezet.

Attentie
Deze onderhoudsinstructies zijn uitsluitend bedoeld voor gekwalificeerd onderhoudspersoneel. Om elektrische schokken te voorkomen, mag u geen andere onderhoudshandelingen verrichten dan in de bedieningsinstructies vermeld staan. Reparatiewerkzaamheden mogen alleen uitgevoerd worden door gekwalificeerd onderhoudspersoneel.

Waarschuwing
Raadpleeg de informatie op de buitenkant van de onderste behuizing voor elektrische en veiligheidsinformatie voordat u het apparaat installeert of bedient.

1. Gelieve alle instructies en waarschuwingen zorgvuldig te lezen en op te volgen.

2. Houd het apparaat uit de buurt van water (behalve voor producten bedoeld voor gebruik buitenshuis).

3. Reinig alleen met een droge doek.

4. Blokkeer de ventilatieopeningen niet. Installeer niet in een afgesloten ruimte. Installeer alleen volgens de instructies van de fabrikant.

5. Bescherm de voedingskabel tegen schade, vooral bij stekkers en het stopcontact van het apparaat.

6. Installeer niet in de buurt van warmtebronnen zoals radiatoren, warmte registers, fornuizen of andere apparaten (inclusief versterkers) die warmte produceren.

7. Hef het veiligheidsdoel van de gepolariseerde of geaarde stekker niet op. Een gepolariseerde stekker heeft twee pennen waarvan één breder is dan de andere (alleen voor de VS en Canada). Een geaarde stekker heeft twee pennen en een derde aardingspen. De brede pen of de derde pen zijn voor uw veiligheid. Als de meegeleverde stekker niet in uw stopcontact past, raadpleeg dan een elektricien om het verouderde stopcontact te vervangen.

8. Gebruik alleen accessoires en apparatuur die door de fabrikant worden aanbevolen.



9. Gebruik alleen gespecificeerde karren, stands, statieven, beugels of tafels. Wees voorzichtig om kantelen te voorkomen bij het verplaatsen van de kar/apparaatcombinatie.

10. Trek de stekker uit tijdens stormen of als het apparaat gedurende lange tijd niet wordt gebruikt.

11. Gebruik alleen gekwalificeerd personeel voor onderhoud, vooral na schade.

12. Het apparaat met een beschermende aardingsaansluiting moet worden aangesloten op een stopcontact met een beschermende aardingsverbinding.

13. Als de stekker van het stopcontact of een apparaatkoppeling als het ontkoppelingsapparaat wordt gebruikt, moet het ontkoppelingsapparaat gemakkelijk bedienbaar blijven.

14. Vermijd installatie in afgesloten ruimtes zoals boekenkasten.

15. Plaats geen open vlambronnen, zoals brandende kaarsen, op het apparaat.

16. Bedrijfstemperatuurbereik van 5° tot 45°C (41° tot 113°F).

WETTELIJKE ONTKENNING

De informatie in deze Snelstartgids en de bijbehorende handleiding wordt uitsluitend verstrekt als algemene richtlijn. Hoewel alle inspanningen zijn geleverd om de nauwkeurigheid en betrouwbaarheid van de inhoud ten tijde van publicatie te garanderen, geeft Music Tribe Global Brands Ltd. ("Music Tribe") geen verklaringen of garanties, expliciet of impliciet, met betrekking tot de volledigheid, nauwkeurigheid of geschiktheid van de hierin opgenomen informatie, beschrijvingen, illustraties of technische specificaties.

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Bewaar uw aankoopbewijs, aangezien dit nodig kan zijn voor garantie service.

SE Viktiga säkerhetsanvisningar





Uttag markerade med symbolen leder elektrisk strömstyrka som är tillräckligt stark för att utgöra en risk för elchock. Använd endast högkvalitativa, kommersiellt tillgängliga högtalarkablar med förhandsinstallerade ¼" TS-kontakter. All annan installering eller modifikation bör endast utföras av kompetent personal.



Denna symbol, var den än förekommer, varnar för närvaron av farlig, oisolerad spänning inuti höljet - spänning som kan vara tillräcklig för att utgöra en risk för stöt.



Den här symbolen hänvisar till viktiga punkter om användning och underhåll i den medföljande dokumentationen. Var vänlig och läs bruksanvisningen.



Försiktighet
Minska risken för elektriska stötar genom att aldrig ta av höljet upptill på apparaten (eller ta av baksidan). Inuti apparaten finns det inga delar som kan repareras av användaren. Endast kvalificerad personal får genomföra reparationer.



Försiktighet
För att minska risken för brand och elektriska stötar ska apparaten skyddas mot regn och fukt. Apparaten går inte utsättas för dropp eller spill och inga vattenbehållare som vaser etc. får placeras på den.



Försiktighet
Serviceinstruktionen är enbart avsedd för kvalificerad servicepersonal. För att undvika risker genom elektriska stötar, genomför inga reparationer på apparaten, vilka inte är beskrivna i bruksanvisningen. Endast kvalificerad fackpersonal får genomföra reparationerna.



Varning
Vänligen se informationen på utsidan av bottenhöljet för elektrisk och säkerhetsinformation innan du installerar eller använder enheten.

1. Vänligen läs och följ alla instruktioner och varningar noggrant.

2. Håll apparaten borta från vatten (utom för utomhusprodukter).

3. Rengör endast med en torr trasa.

4. Blockera inte ventilationsöppningarna. Installera inte i trånga utrymmen. Installera endast enligt tillverkarens anvisningar.

5. Skydda nätkabeln från skador, särskilt vid kontakter och apparatkontakten.

6. Installera inte nära värme källor som element, värmeregistrar, spisar eller andra apparater (inklusive förstärkare) som producerar värme.

7. Förstör inte säkerhetsfunktionen hos den polariserade eller jordade kontakten. En polariserad kontakt har två blad varav ett är bredare än det andra (endast för USA och Kanada). En jordad kontakt har två blad och en tredje jordningsstift. Det breda bladet eller det tredje stiftet är till för din säkerhet. Om den medföljande kontakten inte passar i ditt uttag, kontakta en elektriker för att byta ut det föråldrade uttaget.

8. Använd endast tillbehör och tillbehör som rekommenderas av tillverkaren.



9. Använd endast specificerade vagnar, ställ, stativ, fästen eller bord. Var försiktig för att förhindra vältningsrisk när du flyttar vagnen/ apparatkombinationen.

10. Koppla ur under åskväder eller om enheten inte används under en längre tid.

11. Använd endast kvalificerad personal för service, särskilt efter skador.

12. Apparaten med skyddsjordanslutning ska anslutas till ett vägguttag med skyddsjordanslutning.

13. Om nätkontakten eller en apparatkoppling används som frånkopplingsanordning måste frånkopplingsanordningen vara lätt åtkomlig.

14. Undvik installation i trånga utrymmen som bokhyllor.

15. Placera inte öppna lågor, som tända ljus, på apparaten.

16. Driftstemperaturområde 5° till 45°C (41° till 113°F).

FRISKRIVNINGSKLAUSUL

Informationen i denna Snabbstartsguide och den medföljande manualen tillhandahålls endast som allmän vägledning. Trots att alla ansträngningar har gjorts för att säkerställa innehållets noggrannhet och tillförlitlighet vid publiceringstillfället, gör Music Tribe Global Brands Ltd. ("Music Tribe") inga utfästelser eller garantier, vare sig uttryckliga eller underförstådda, angående fullständigheten, riktigheten eller lämpligheten av den information, beskrivningar, illustrationer eller tekniska specifikationer som finns häri.

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Spara ditt inköpsbevis, eftersom det kan behövas för garantiservice.

PL Ważne informacje o bezpieczeństwie



Terminale oznaczone symbolem przenoszą wystarczająco wysokie napięcie elektryczne, aby stworzyć ryzyko porażenia prądem. Używaj wyłącznie wysokiej jakości fabrycznie przygotowanych kabli z zainstalowanymi wtyczkami ¼" TS. Wszystkie inne instalacje lub modyfikacje powinny być wykonywane wyłącznie przez wykwalifikowany personel techniczny.

Ten symbol, gdziekolwiek się pojawi, informuje Cię o obecności nieizolowanego niebezpiecznego napięcia wewnątrz obudowy - napięcia, które może stanowić ryzyko porażenia.

Ten symbol informuje o ważnych wskazówkach dotyczących obsługi i konserwacji urządzenia w dołączonej dokumentacji. Proszę przeczytać stosowne informacje w instrukcji obsługi.

Uwaga
W celu wyeliminowania zagrożenia porażenia prądem zabrania się zdejmowania obudowy lub tylnej ścianki urządzenia. Elementy znajdujące się we wnętrzu urządzenia nie mogą być naprawiane przez użytkownika. Naprawy mogą być wykonywane jedynie przez wykwalifikowany personel.

Uwaga
W celu wyeliminowania zagrożenia porażenia prądem lub zapalenia się urządzenia nie wolno wystawiać go na działanie deszczu i wilgotności oraz dopuszczać do tego, aby do wnętrza dostała się woda lub inna ciecz. Nie należy stawiać na urządzeniu napełnionych cieczą przedmiotów takich jak np. wazony lub szklanki.

Uwaga
Prace serwisowe mogą być wykonywane jedynie przez wykwalifikowany personel. W celu uniknięcia zagrożenia porażenia prądem nie należy wykonywać żadnych manipulacji, które nie są opisane w instrukcji obsługi. Naprawy wykonywane mogą być jedynie przez wykwalifikowany personel techniczny.

Ostrzeżenie
Przed zainstalowaniem lub uruchomieniem urządzenia prosimy zajrzeć do informacji umieszczonej na zewnętrznej części dolnej obudowy dotyczącej informacji elektrycznych i bezpieczeństwa.

1. Proszę przeczytać i ścisłe przestrzegać wszystkich instrukcji i ostrzeżeń.

2. Trzymaj urządzenie z dala od wody (z wyjątkiem produktów przeznaczonych do użytku na zewnątrz).

3. Czyść tylko suchą szmatką.

4. Nie blokuj otworów wentylacyjnych. Nie instaluj w zamkniętym miejscu. Instaluj tylko zgodnie z instrukcjami producenta.

5. Zabezpiecz przewód zasilający przed uszkodzeniem, zwłaszcza przy wtyczkach i gnieździe urządzenia.

6. Nie instaluj w pobliżu źródeł ciepła, takich jak grzejniki, rejestratory ciepła, kuchenki lub inne urządzenia (w tym wzmacniacze), które generują ciepło.

7. Nie unieważniaj celu bezpieczeństwa wtyczki spolaryzowanej lub wtyczki z uziemieniem. Wtyczka spolaryzowana ma dwie wtyczki, z których jedna jest szersza niż druga (tylko dla USA i Kanady). Wtyczka z uziemieniem ma dwie wtyczki i trzeci bolc uziemiający. Szeroka wtyczka lub trzeci bolc są dostarczone dla Twojego bezpieczeństwa. Jeśli dostarczona wtyczka nie pasuje do Twojej gniazdka, skonsultuj się z elektrykiem w celu wymiany przestarzałego gniazdka.

8. Używaj tylko akcesoriów i dodatków zalecanych przez producenta.



9. Używaj tylko określonych wózków, stojaków, statywów, uchwytów lub stolików. Uważaj, aby uniknąć przewrócenia wózka/kombinacji urządzenia podczas przemieszczania.

10. Odłączaj w czasie burz lub jeśli urządzenie nie jest używane przez długi okres.

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About this manual

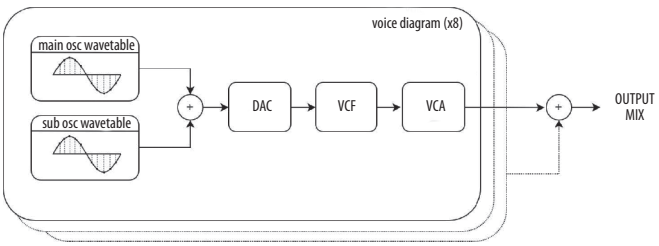
This manual offers a comprehensive guide to the Wave synthesizer, detailing its functionality and features. Additionally, it includes a brief introduction to wavetable synthesis, providing insight into the theory behind this synthesis method. We highly recommend reading through this manual to fully acquaint yourself with the controls and enhance your experience with the instrument.

New features in firmware 1.0.11

- Exponential envelopes added to enhanced firmware settings
- Variable transient loop size of 128, 2048 and 8192 samples
- New factory transients (44,45,46,47,48)
- Updated presets in bank 0 (70,71,72,73,74)

Introduction

The Wave is an 8-voice hybrid wavetable synthesizer that combines digital and analog sound generation techniques to deliver rich and complex sounds. Unlike conventional analog synthesizers that rely on voltage-controlled oscillators, The Wave employs digitally crafted waveforms housed in wavetables for sound generation. Each voice in this system is composed of a pair of oscillators, the main and the sub. These oscillators are combined and then transformed into analog signals via a Digital-to-Analog Converter (DAC). Following this conversion, the signal is directed through a Voltage-Controlled Filter (VCF) and a Voltage-Controlled Amplifier (VCA), completing the sound production process.

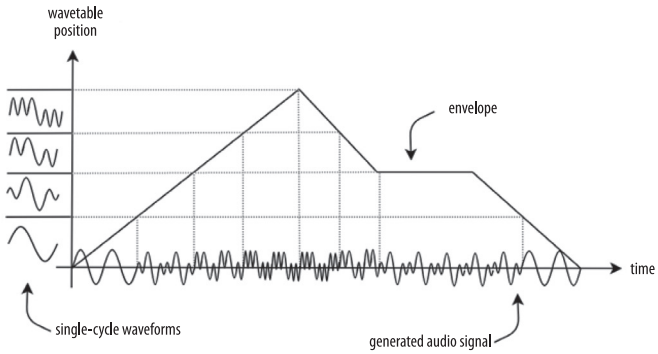


To further enhance sound design capabilities, the Wave includes a comprehensive modulation matrix, three envelope generators, and a low-frequency oscillator with four waveforms and adjustable delay. Creative possibilities are expanded with an extensive set of keyboard modes and split points, allowing the synth to be used in standard 8-voice polyphony, unison, or bi-timbral configurations with a layered keyboard.

The Wave offers 30 factory wavetables and 64 user-defined wavetables, each containing 64 waveforms. Additionally, there are 32 slots available for user-defined transients. Both user-defined wavetables and transients can be downloaded using the SynthTribe app.

How Wavetable synthesis works

Wavetable synthesis is a digital sound generation technique based on the periodic reproduction of single-cycle waveforms. Introduced for the first time in the eighties and pioneered by artists such as Depeche Mode, Tangerine Dream and Tears for Fears, wavetable synthesis is widely used today by musicians and sound designers for the versatility it offers. In a wavetable synthesizer, single-cycle waveforms are stored in tables called wavetables. What sets wavetable synthesis apart from other generation techniques is the ability to sweep through the wavetable, generating complex, evolving sounds. Like any other modulation destination, wavetable sweeping can be controlled by various modulation sources such as envelopes and LFOs, expanding the sonic possibilities. The image graphically depicts how the output sound changes when sweeping the wavetable using a four-stage ADSR envelope. For the sake of simplicity, a wavetable with four waveforms is considered.



When transitioning from one waveform to the next, artifacts can be generated due to phase discontinuities between waveforms resulting in abrupt transitions. This characteristic is typical of the first wavetable synthesizers and contributes to their distinctive sound. The Wave offers the option to reduce these artifacts through the Osc setting in the User menu. With this setting engaged, the adjacent waveforms are morphed together resulting in smoother transitions.

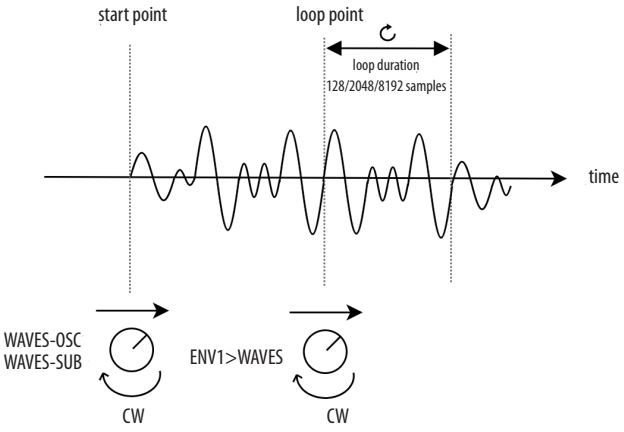
Each of the Wave synthesizer wavetables contains 64 single cycle waveforms. In each wavetable the last four waveforms emulate the typical analog waveforms: Sawtooth, pulse, square and triangle. In addition to the envelope, the waveform position can be further modulated by many sources including the LFO, Aftertouch, Modulation wheel, Pitch wheel, expression pedal and keyboard, further extending the expressiveness of the instrument. The Wave also offers the possibility to store and reproduce up to 32 transient sounds, adding to its sonic capabilities.

Each voice consists of two independent oscillators, one main oscillator and a secondary sub oscillator. The position of each oscillator inside the wavetable can be controlled using the Waves-Osc and Waves-Sub controls. When sweeping through the wavetable the sub oscillator waveform can be set to run in parallel with the main oscillator or to be manually controlled.

In addition to the wavetable selected from the Program menu, each program has an additional wavetable called the Upper wavetable, which can be enabled via the UW option in the Digital menu. These two wavetables are linked in a looping sequence, meaning that when any modulation source exceeds the wavetable lower or upper limits, the upper wavetable will become audible.

Working with transients

The Wave also supports transient sounds, which are short audio samples you can import using the SynthTribe app. When a transient slot is selected from the Program menu, the WAVE text is replaced with TRAN. In this mode, Waves-Osc and Waves-Sub set the start points for the main and sub oscillators, while ENV1>WAVES sets the loop point for both oscillators. The loop size can be set to 128, 2048 or 8192 samples using the UW options in the Digital menu. For information on how to import custom transients, please refer to the section "User Waves and Transients".



EN

Preset Wavetables and Transients

As mentioned in the introduction the Wave comes with 30 preset wavetables and one preset transient. In addition to this a number of the user defined slots have wavetables in them from the factory, which can be overwritten if required. The preset wavetables are:

No	Name	Description
0	Harmonic Bliss	This wavetable features pronounced harmonics ranging from 1 to 8, mimicking the behavior of a resonant filter. The waveform corresponding to wave number 00 is a pure sine wave.
1	Harmonic Bliss2	This wavetable boasts enhanced higher harmonics alongside a dual virtual analog filter (VCF) simulation.
2	Bells	Extending the features of the previous wavetables, this one is particularly suited for producing vibes, bells, and tubular bell sounds.
3	WindSweep ResoFlute	Offering a sine-to-rectangular sweep and a low-resonance virtual analog filter (VCF) simulation, this wavetable is optimized for creating clarinet and flute-like tones
4	Churchy	Waves 00-47 exhibit progressively escalating high harmonics, each with increasing amplitudes. Waves 47-59 continue this trend at an accelerated pace. Additionally, this wavetable lends itself well to creating delay effects and evoking the resonance of church bells.
5	Harmonic MixBlend	This wavetable accentuates very high harmonics, delivering effects akin to wavetable 016 but with a more blended, mixture-like character.
6	WoodwindSweep ResoVibe	Featuring a sine-to-ramp sweep and subtle low-resonance virtual analog filter (VCF) effects, this wavetable is well-suited for generating woodwind sounds.
7	SylvanSweep ResoWind	With a sine-to-ramp sweep and gentle low-resonance virtual analog filter (VCF) effects, this wavetable excels in producing woodwind-like timbres.
8	PercuStrings	This wavetable offers a highpass VCF simulation without resonance. Wave 00 exhibits minimal or absent fundamental frequencies, while Wave 25 features a maximum amplitude fundamental. Ideal for crafting dark percussive strings and bass tones with click-like attacks.
9	VoxEnsemble	Characterized by robust middle-range harmonics, these formants are well-suited for ring modulation and vocal-like textures.
10	Reso	Similar to wavetable 9.
11	Chiaroscuro	Featuring low formants, this wavetable ranges from dark (Wave 00) to bright (Wave 32) and back to dark (Wave 59).
12	SweepingHigh	This wavetable showcases sweeping high formants
13	HarmonicStrike	This wavetable features powerful high-order harmonics with a subdued fundamental, perfect for crafting bright percussive keyboard instrument sounds such as clavichord and harpsichord. Sweeping through the waves creates an amplitude modulation effect, with Wave 00 at maximum amplitude, Wave 24 at minimum amplitude, and Wave 59 back to maximum. For intriguing noise effects, experiment with significant detuning and dissonant low chords.
14	OrganicRegisters	Offering a variety of organ registers, including Sine, Hammond, Lowery, and Church organ tones.
15	HarmonicSaw Accordionizer	Harmonics 2 and 3 transition to a sawtooth sweep, ideal for generating harmonium, accordion, and harmonica-like sounds
16	SweepFrenzy	Sweeping this wavetable results in wild amplitude modulation effects, featuring multiple peaks and dips in amplitude.
17	Spectrum Shift	Wave 00 presents the fundamental and second harmonic, while Wave 14 features only the fundamental. Wave 40 showcases high harmonics, and Wave 59 returns to the fundamental alone.
18	Harmonic Sweep Oscillation	Sweeping this wavetable yields a high-low-high harmonic sweep effect.
19	ElectricP	Waves 00-32 consist of static waveforms with prominent upper harmonics resembling strings, accompanied by a few lower harmonics. Wave 59 lacks a fundamental frequency.
20	Robotic	This wavetable facilitates rapid, discrete alterations between low and high harmonics, ideal for achieving sample and hold effects. Wave 00 begins with a sine wave.
21	StrongHrm	Transitioning from a sine wave to high-frequency formants.
22	EchoScape Spectrum	Tailored for echoing effects, this wavetable offers waveforms ranging from the original attack plus one delay to two colored delays. Wave 00 starts with a sine wave.
23	HighHarmonic Emphasis	Prominent high harmonics
24	Organic Ascend Sweep	Static organ-like tones. When swept, creates ascending high harmonic sweeps.
25	EchoColor Spectrum Shift	Waves 59 to 49 transition from bright to sine wave. Waves 48 to 33 feature a colored delay, while Waves 33 to 18 are sine waves. Waves 17 to 00 incorporate a colored delay echo.
26	BrassForm SawVariants	Various iterations of sawtooth waves characterized by robust, bright formants, perfect for brass-like timbres.
27	VoxForm	Formant sweeps enable the creation of vocal and choir sounds when controlled by a keyboard.
28	PhaseString Ensemble	Sawtooth waves with phasing, ideal for ensemble string sounds.
29	PulseShift Modulation	Transitioning from square to rectangular to narrow pulse waves, with sweeps producing pulse-width modulation effects.
30	Upper Wavetable	

EN

The Wave is shipped with additional wavetables in slots 64 – 83, which can be over-written using SynthTribe:

No	Name	Description
64	Pipes Xfade	Crossfade of two Church Organ Pipe Waveforms
65	PD_Saw PWM	SAW Waveshaper
66	DX_Tubular	Famous DX Tubular sound
67	DX_E.Guitar	Jazz Guitar
68	DX_FullTine	Famous Full Tines Sound
69	Vibe-rant	Vibraphone Waveforms
70	DX_Bass	Digital Bass
71	StratoSweep	Corssfade of four digital synth waveforms
72	FormantPad	Rotating Phase Shifter
73	FairVox	Famous Fairlight Voices
74	SpaceSweep	Famous D50 Synth Sound
75	SoundTrack	LA Filter Sweep
76	PWMstringer	SAW+PWM_Square+Sub Juno Sound
77	Hoover	Juno 106 PWM
78	PD_Saw	CZ Phase Distortion SAW
79	PD_SQU	CZ Phase Distortion SQU
80	PD_TPL	CZ Phase Distortion TRI Pulse
81	PD_DBL	CZ Phase Distortion Double Sine
82	PD_SPL	CZ Phase Distortion Sine Pulse
83	PD_RES	CZ Phase Distortion Resonant
84	Wurli Wave	Electric Reed Piano
85	Rhodos	Electric Piano
86	Vorcode	Vocal Jam

The preset transients are:

No	Name	Description
32	PanFlute	Wood Flute
33	Pizzi	String Section Pizzicato
34	Steel Guitar	Plucked Steel String
35	Elec. Cello	PM Solo String Sound
36	Xylophon	Xylophone with hard Mallet
37	Harp	Plucked Harp String
38	Pizzagogo	Famous D50 Sound
39	Soft Bell EP	PM Electric Piano
40	Medium EP	Medium Velocity EP Tone
41	Trumpet	Solo Trumpet Tone
42	Mute Trumpet	Muted Trumprt Tone
43	Duuhh	Scat Voices
44	Pipe Brass	Flute and Brass
45	Hammer Harp	Harp with Stiff Strings
46	Cath. Choir	Cathedral Choir
47	ChoirVerse	Choir in Big Space
48	Breathy Vox	Synth Choir

Note that transients 32 – 48 can be over-written using SynthTribe.

EN

Modulation Matrix

The Wave synthesizer offers a wide range of modulation options, providing the user with virtually infinite capabilities in terms of sound design. MAIN-OSC and SUB-OSC pitch, Waves, VCF, and VCA can be modulated through various settings accessible in the menus. The table below shows the modulation matrix. The types of modulation, and their options are discussed in Top Panel below; and in the Digital Menu section.

Destination / Source	Pitch Bend	Mod Wheel(1)	LFO(2)	KEY	Velocity	AF(3)	Exp Ped(4)	ENV1	ENV2	ENV3
MAIN-OSC PITCH	x		x							x
SUB-OSC PITCH	x		x							x
WAVES (MAIN and SUB)	x	x	x	x		x	x	x		x
Filter Cutoff	x	x	x	x	x	x	x	x		
Loudness			x	x	x	x	x		x	
Filter emphasis		x					x			

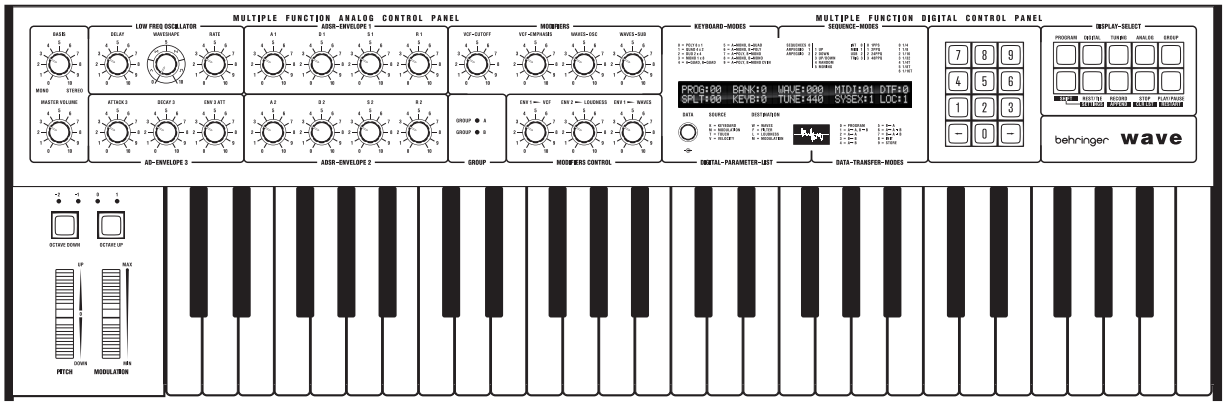
(1) & (2) Modulation wheel can be either used as a direct source of modulation or to control the amount of modulation by the LFO.

(3) After touch must be enabled in the User menu (setting TOUCH).

(4) The Expression Pedal can be assigned to directly modulate these parameters. If it is set to EXP:5, it will have the same effect as turning the MOD wheel.

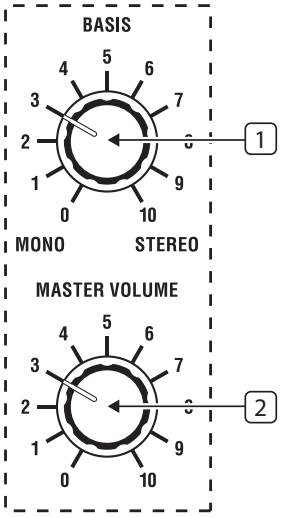
EN

Top Panel



The following sections describe the top panel controls of the Wave; and how they are used in program creation. All Top Panel control settings are stored in the program memories, with the exception of Basis [1] and Master Volume [2]. The control settings can be monitored and fine adjusted if needs be in the Analog Menu, described below.

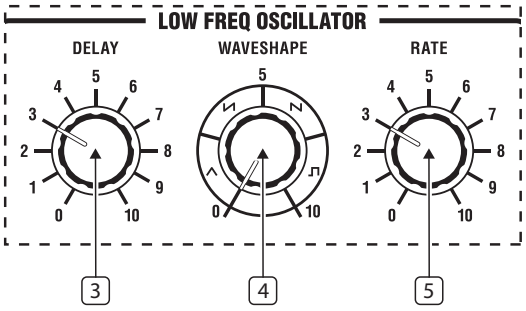
Master Controls



[1] **Basis** – adjusts the stereo spread of the notes played on the keyboard. When the control is at minimum then all notes will be output at equal level from both the channel 1 and channel 2 outputs. When the control is at maximum notes will alternate between the outputs.

[2] **Master Volume** – sets the Wave's output level.

Low Frequency Oscillator

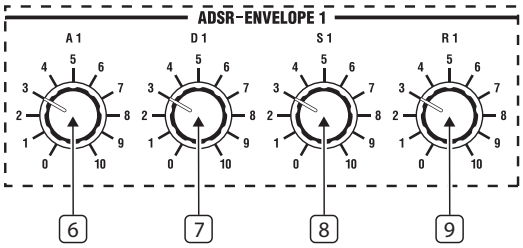


[3] **LFO Delay** – delays the action of the LFO. When the control is at minimum there will be a slight delay before modulation can be heard (depending on the firmware setting (see User Menu below)). When at maximum there will be a delay of 10 seconds before modulation is applied.

[4] **Waveshape** – the LFO has four waveshapes available: triangle, ramp, sawtooth and square.

[5] **Rate** – controls the rate at which the LFO runs, from 0.2 Hz to 12.0 Hz.

Envelope Generator 1



[6] **EG 1 Attack** – controls the attack time for the filter envelope. If the Envelope attack rate is set above 47 then the attack will fully complete even if the key is released; and will then move to the release phase. This can be used for filter and wavetable sweeps.

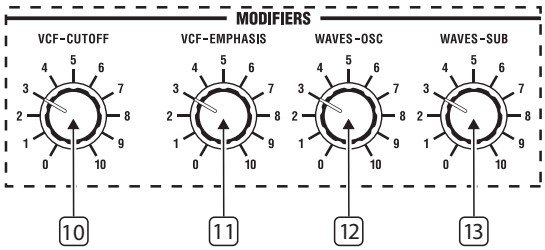
[7] **EG 1 Decay** – controls the decay time for the filter envelope.

[8] **EG 1 Sustain** – controls the sustain level for the filter envelope following Decay.

[9] **EG 1 Release** – controls the release time for the filter envelope.

EN

Modifiers



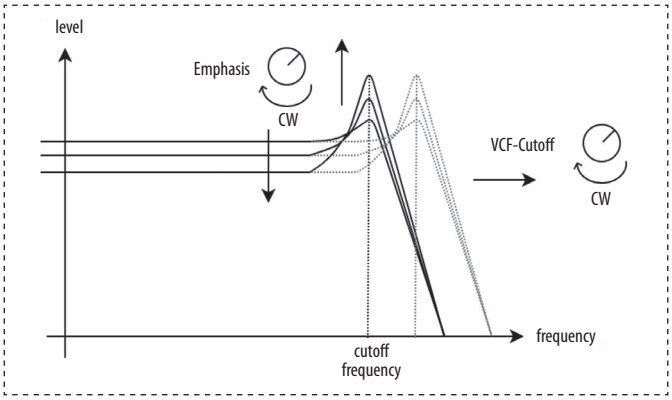
10 **VCF Cutoff** – controls the cutoff frequency of the low pass filter.

11 **VCF Emphasis** – controls the resonance of the filter.

Each of the voices of the Wave synthesizer is equipped with a 24dB per octave voltage-controlled low-pass filter, based on the reproduction of the SSM2044 chip.

The VCF-Cutoff knob sets the filter cutoff frequency: frequencies below this threshold pass unchanged, while frequencies above it are attenuated. Turning the VCF-Cutoff knob clockwise increases the cutoff frequency, so when the knob is turned fully clockwise, the sound passes unchanged.

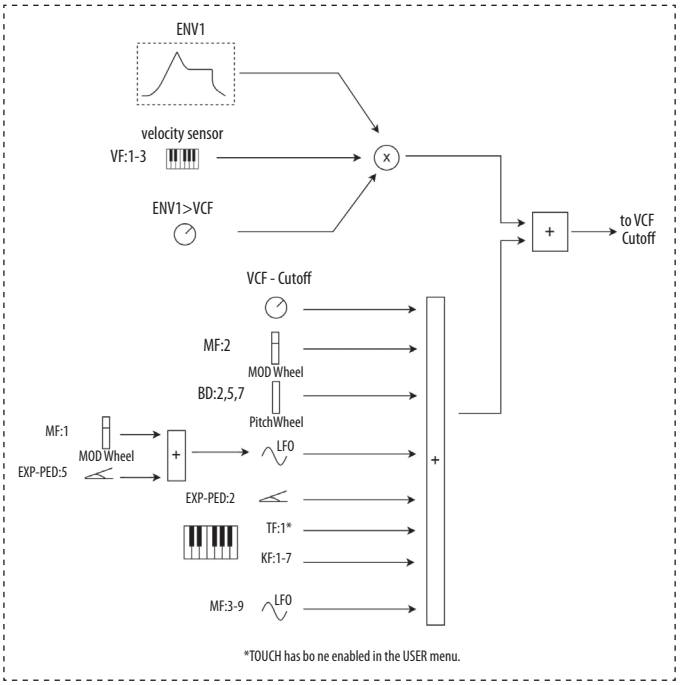
The Emphasis control adjusts the filter resonance, emphasizing the frequencies around the cutoff frequency set by the VCF-Cutoff knob. If the resonance is increased significantly, the filter will start to self-oscillate, generating a sine wave whose frequency depends on the VCF Cutoff. You can experiment the effect of the resonance by increasing the Emphasis knob. Setting the emphasis to values below 50%, produces the typical bright sound. Please note that one of the characteristics of the SSM2044 is the dependency between resonance and output signal level: as the resonance increases, the filter output level decreases. The operation of the filter is depicted in the image below.



Filter Modulation

Filter Cutoff frequency can be modulated by the following sources:

- Pitch bend (Option BD in Digital menu)
- Modulation Wheel (Option MF in Digital menu)
- Low Frequency Oscillator (Option MF in Digital menu)
- Keyboard (Option KF in Digital menu)
- Velocity (Option VF in Digital menu)
- Envelope 1 (Default)
- Expression Pedal (Option EXP-PED in USER menu)
- Channel Aftertouch (Option TL in Digital menu)



12 **Waves Osc** – steps through the waveforms of the selected wavetable for the main oscillator, from 00 to 63.

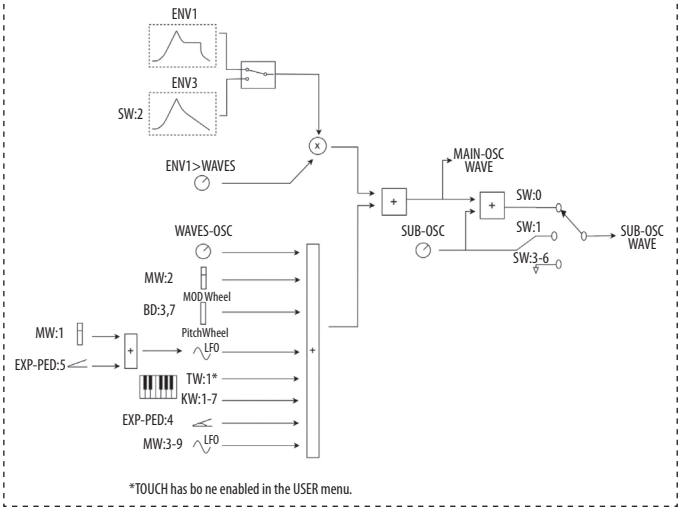
13 **Waves Sub** – steps through the waveforms of the selected wavetable for the sub oscillator, from 00 to 63.

If the selected waveform is a transient one (31-63) then controls 12 and 13 will set the sample playback start points for the main and sub oscillators.

Waves Modulation

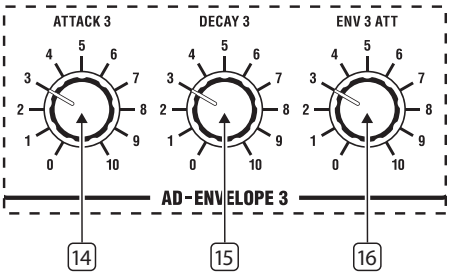
Main and Sub oscillator waves can also be modulated by:

- Pitch bend (Option BD in Digital menu)
- Modulation wheel (Option MW in Digital menu)
- LFO (Option MW in Digital menu)
- Keyboard (Option KW in Digital menu)
- Aftertouch (Option TW in Digital menu)
- Expression pedal (Option EXP-PED in USER menu)
- Envelope 1 or Envelope 3 (Option SW in Digital menu)



EN

Envelope Generator 3

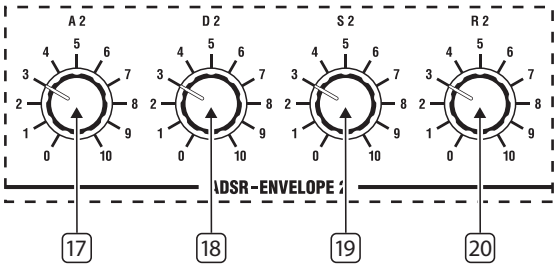


14 **EG3 Attack** – controls the attack time for the third envelope.

15 **EG3 Decay** – controls the decay time for the third envelope.

16 **EG3 Attenuation –** attenuates (reduces) the maximum output of the third envelope generator. This has a different effect according to what the third envelope is being used for: if it is being used on the pitch of the oscillator then in position five there is no modulation, with lower settings resulting in negative action and higher in positive. When used for modulating the wavetables then the settings run from no modulation at 0 to full (63 wavetable steps) at 10. This modulation is added to the WAVES SUB value.

Envelope Generator 2



17 **EG 2 Attack** – controls the attack time for the loudness envelope. If the Envelope attack rate is set above 47 then the attack will fully complete even if the key is released; and will then move to the release phase. This can be used for filter and wavetable sweeps.

18 **EG 2 Decay** – controls the decay time for the loudness envelope.

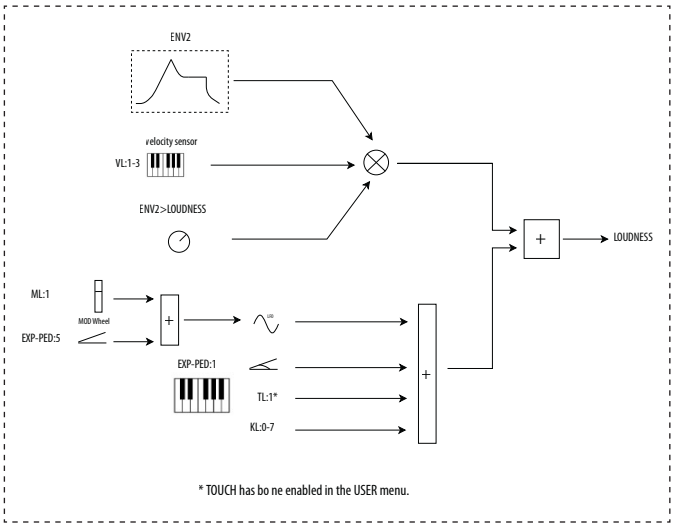
19 **EG 2 Sustain** – controls the sustain level for the loudness envelope following Decay.

20 **EG 2 Release** – controls the release time for the loudness envelope.

Loudness modulation

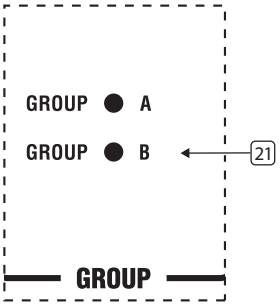
Loudness can be modulated by the following sources:

- LFO (Option ML in Digital menu)
- Keyboard (Option KL in Digital menu)
- Velocity (Option VL in Digital menu)
- Aftertouch (Option TL in Digital menu)
- Expression pedal (Option EXP-PED in USER menu)
- Envelope 2 (Default)



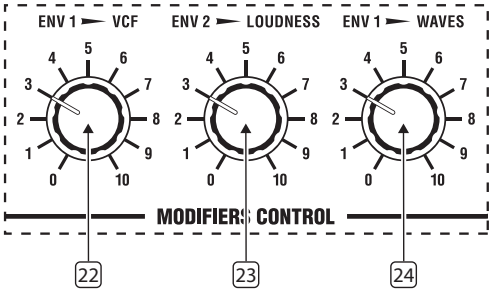
Note that the ML option set to 1 switches on direct modulation through the LFO if FIRM is 0. When FIRM is set to 1, then the amount of LFO loudness modulation is determined by the Mod wheel. See User Menu and Digital Menu sections below.

Group



21 **Group** – each program has two sounds associated with it, in groups A and B. The group LEDs indicate which sound can be edited when using the DIGITAL/ TUNING/ANALOG menus. If both LEDs are lit, parameter changes effect both group sounds. In KEYB POLY 8x1 mode, the lit LED indicates which sound is used. (if both LEDs are lit, group B sound is used).

Modifiers Control



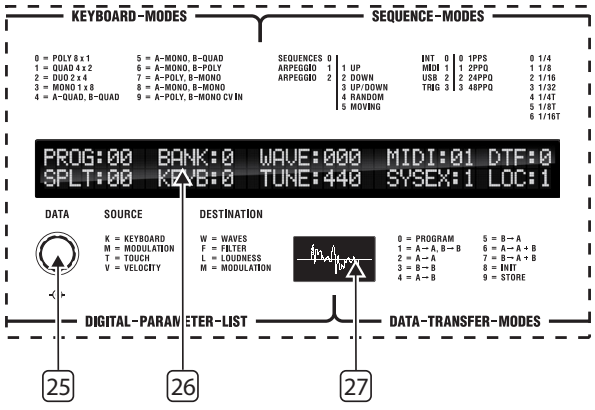
22 **Env 1 VCF** – controls the amount of filter modulation from Envelope Generator 1.

23 **Env 2 Loudness –** this control adjusts the output level of the active group; and can be used to balance group A and B sounds when used together or in a split mode.

24 **Env 1 Waves –** controls the use of Envelope Generator 1 to step through the waveforms in the wavetable in use. If a transient is selected then this control will set the loop point for sample playback for both the main oscillator and the sub-oscillator.

EN

Display

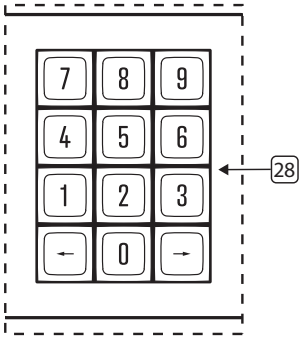


25 **Data Control –** used as an alternative to the keypad for entering values. Turn the control to the desired value then press to change the value.

26 **LCD Display –** 2 x 40 character display, showing different parameter information according to which button on the keypad is in use. The display is vitally important when using the various menus.

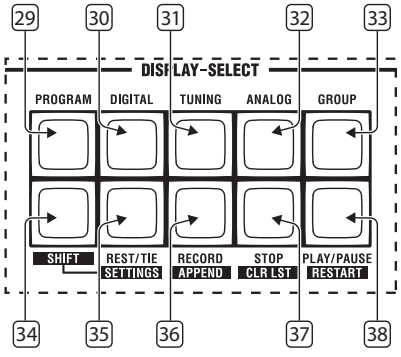
27 **OLED Display –** The OLED display serves as an oscilloscope, displaying the real-time output waveform of the synth. During calibration, it provides calibration information. It also shows the names of selected wavetables and transients when in editing mode and confirms successful receipt of wavetables or transients transferred via SynthTribe.

Numeric Keypad



28 **Numeric Keypad** – used for direct number entry and cursor control.

Display/Menu Select and Sequencer Controls



29 **Program** – calls up the program menu to the display. This is the default menu on power-up. Pressing the button twice calls up the User menu. See Program and User Menus below for full detail.

30 **Digital –** calls up the digital parameters to the display for editing. See Digital menu below for full detail.

31 **Tuning –** calls up the tuning parameters to the display for editing. See Tuning menu below for full detail.

32 **Analog –** calls up the analog parameters to the display for editing. See Analog menu below for full detail.

33 **Group –** each program has two sounds associated with it, in groups A and B. The group LEDs indicate which sound can be edited when using the DIGITAL/ TUNING/ANALOG menus. If both LEDs are lit, parameter changes effect both group sounds. In KEYB POLY 8x1 mode, the lit LED indicates which sound is used. (if both LEDs are lit, group B sound is used).

SEQUENCER BUTTONS

34 **Shift –** used to access the shifted functions on buttons 35 - 38.

35 **Rest/Tie –** pressing this button while holding a note or chord will extend (tie) the note(s) across more than one step of the sequence. Pressing it without holding any notes will insert a rest at that point in the sequence.

36 **Record –** puts the sequencer into Record mode.

37 **Stop –** when a sequence is running pressing the stop button stops the sequence and resets it to the first position.

38 **Play/Pause –** if a sequence is not running then pressing this button starts it. A further press will pause the sequence, but unlike the use of the Stop button will not reset to first position. Pressing the button a third time will restart the sequence from the point that it was paused.

Using the Shift button with the four sequencer buttons adds additional functions:

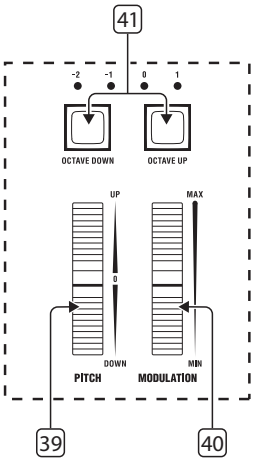
Shift & 35 – Settings – accesses sequencer settings menu. See Sequencer Menu below for full detail.

Shift & 36 – Append – after using the </> buttons to go to a specific step in the sequence pressing Shift and 36 allows you to add additional notes to those already recorded on the selected step, to the maximum allowed by the keyboard settings; or to replace the already programmed note(s), depending on the OVP settings in the Sequencer menu.

Shift & 37 – Clr Lst – Clear Last allows steps to be erased from the sequence, starting with the last step recorded. Pressing and holding Clear Last will erase the whole sequence.

Shift & 38 – Restart – when a sequence is running pressing Shift and 38 restarts it from the first step.

Performance Controls



39 **Pitch Wheel** – the function of the Pitch Wheel is configured through the BD option in the Digital menu. It can operate as a traditional pitch bend controller for one or both oscillators or be assigned to control other parameters, such as filter cutoff or wavetable position. The wheel automatically returns to its center position when released.

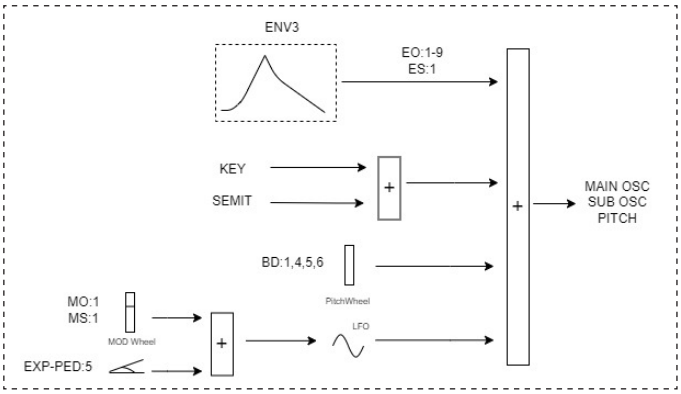
EN

Main and Sub Oscillator Modulation

Both the Main and Sub oscillators' pitch can be modulated by the following sources:

- Pitch bend (Option BD in Digital menu)
- LFO (Option MO and SO in Tuning menu, through the MOD wheel)
- Expression pedal (Option EXP-PED:5 in USER menu, through the LFO if MO/SO is activated)
- Envelope 3 (Option EO and ES in Tuning menu)

Note: Bend Interval (BI) in Digital menu determines amount of Pitch Wheel modulation. EO2 - 9 in TUNING menu activates polyphonic portamento.



40 **Modulation Wheel –** can be used for various types of modulation depending on the user settings. Please note that the wheel position is stored in each preset, separate for Group A and B sound parameters.

41 **Octave Up/Down –** transposes the keyboard up by one octave or down by one or two octaves, as indicated by the associated LEDs.

Menus

Program Menu



This is the default menu, which you will see on the display when you power up. It indicates the status of the Wave.
Please note that where two characters are required on a data entry then a leading zero should be added for single figure numbers (eg 01 for 1.) Parameters are navigated using the left and right cursor controls on the numeric keypad 28; or by using the data encoder 25.

From left to right / top row:

PROG – indicates the current program number from 0 to 99.

BANK – indicates the program bank in use, 0 or 1.

WAVE/TRAN – indicates the wavetable or transient associated with the current program, from 0 to 127. Positions 0 to 30 are the preset wavetables, position 31 is a preset transient wave, positions 32 to 63 are user defined transients and positions 64 to 127 are user defined wavetables.

MIDI – indicates the MIDI transmit and receive channel that your Wave is set to.

0 – indicates that MIDI is switched off; no messages will be transmitted or received.

1-16 – indicates that the Wave will transmit and receive on the specified channel (MIDI mode 3).

DTF – indicates Data Transfer status as follows:

0. Program (default)
1. A – A, B – B: the program data for the group A sound is loaded into the group A edit buffer, and that of group B to the group B edit buffer. Wavetable, split and keyboard mode are unaffected.
2. A – A: the program data for the group A sound is loaded into the group A edit buffer. Group B, wavetable, split and keyboard mode are unaffected.
3. B – B: the program data for the group B sound is loaded into the group B edit buffer. Group A, wavetable, split and keyboard mode are unaffected.
4. A – B: the program data for the group A sound is loaded into the group B edit buffer. Group A, wavetable, split and keyboard mode are unaffected.
5. B – A: the program data for the group B sound is loaded into the group A edit buffer. Group B, wavetable, split and keyboard mode are unaffected.
6. A – A & B: the program data for the group A sound is loaded into both edit buffers. Wavetable, split and keyboard mode are unaffected.
7. B – A & B: the program data for the group B sound is loaded into both edit buffers. Wavetable, split and keyboard mode are unaffected.
8. INIT: this option resets the Wave to its factory settings. You will be asked to type 1 to confirm reset or 0 to cancel. INIT does not erase user wavetables or transients.
9. Store

To use the Data Transfer menu to store your edited programs take the following steps:

1. Make your edits as required.
2. Move the cursor in the program menu to DTF. The number next to the DTF indicator should be 0, which is the default setting.
3. Press 9.
4. Select the required program bank (0 or 1).
5. Move the cursor to the PG (program) position and select the program number that you wish to write to, even if you are writing to the same program memory. You will be asked to confirm the write operation by typing 1 for yes or 0 for no. This completes the operation, and DTF will return to 0.

From left to right / bottom row:

SPLT – allows the programming of keyboard split point for use with keyboard modes 4 – 8 as discussed below. The lowest octave of the keyboard, in -2 octave mode, is represented by 0 – 12; -1 octave mode 13-24; 0 octave mode 25-36 etc. The note selected as the split point will be the lowest note of the upper keyboard.

KEYB – indicates which keyboard mode is in use:

0. Poly (default) – eight note polyphony with one oscillator voice and one sub-oscillator voice for each note, sound can be switched between Group A and Group B using button 34.
1. Quad – four note polyphony with two oscillator voices and two sub-oscillator voices for each note, four voices each from Group A (odd numbers) and B (even numbers).
2. Duo – duophonic operation with four oscillator voices and four sub-oscillator voices for each note, four voices each from Group A (odd numbers) and B (even numbers).
3. Mono (Unison) – monophonic operation with all eight oscillator voices and eight sub-oscillator voices for each note, four voices each from Group A (odd numbers) and B (even numbers).
4. A - Quad, B - Quad – split mode with four note polyphony for each sound in Group A and Group B, with Group A sounds on the upper keyboard and Group B on the lower.
5. A – Mono, B – Quad – split mode where the Group A sound is monophonic with four oscillator voices and four sub-oscillator voices and the Group B sound is four note polyphonic with one oscillator voice and one sub-oscillator voice per note played, with Group A sounds on the upper keyboard and Group B on the lower.
6. A – Mono, B – Poly – split mode where the Group A sound is monophonic with two oscillator and two sub-oscillator voices and the Group B sound is six note polyphonic with one oscillator voice and one sub-oscillator voice per note played, with Group A sounds on the upper keyboard and Group B on the lower.
7. A – Poly, B – Mono – split mode where the Group A sound is six note polyphonic with one oscillator voice and one sub-oscillator voice per note played and group B is monophonic with two oscillator and two sub-oscillator voices, with Group A sounds on the upper keyboard and Group B on the lower.
8. A – Mono, B – Mono – split mode where Group A and Group B are monophonic, with four oscillator voices and four sub-oscillator voices each, with group A sounds on the upper keyboard and group B on the lower.
9. A – Poly, B – Mono CV IN – Group A sound is 7 notes polyphonic, monophonic Group B sound is controlled by CV/GATE Inputs on the rear panel

TUNE – indicates the master tuning of the Wave. Normally this would be set to A = 440 (Hz), but it can be adjusted in the range 400 Hz to 499 Hz

SYSEX – Used for manual dump of program data.

0 – default (no action).

1 – sends current edit buffer data.

2 – sends current program data.

3 – sends current bank.

4 – sends sequencer edit buffer.

5 – sends current program's sequencer data.

6 – sends current bank's sequencer data.

LOC – selects whether local control from the internal keyboard is active, or whether the Wave will only respond to incoming MIDI messages:

0 = Off (keyboard and controls transmit MIDI, Sound Engine is controlled only through MIDI IN)

1 = Enabled (keyboard and MIDI IN controls Sound Engine)

User Menu



The User Menu is selected by pressing the Program button 29 twice. It shows global parameters and allows them to be edited Parameters are navigated using the left and right cursor controls on the numeric keypad 28

From left to right / top row:

PROG – shows the current program number, which can be changed in this menu.

EXP-PEDAL – if a footpedal is connected to socket 56 (Expression Pedal) on the rear panel this option allows you to select what action the pedal will have:

0 = Off (the pedal will have no effect).

1 = Loudness (works with the ENV 2 Loudness control).

2 = Filter Frequency (works with the VCF Cutoff control).

3 = Filter Emphasis (works with the VCF Emphasis control).

4 = Wave (works with the Waves Osc control).

5 = Modulation Wheel (duplicates the modulation wheel).

Note that the use of an expression pedal does not disable the control that it is duplicating, the two work together until the maximum value is reached. So, for example, if the ENV 2 Loudness control is at its maximum value and option 1 is selected the pedal will have no effect.

TOUCH – selects how Channel Aftertouch is transmitted and received by the Wave:

0 = Off (no aftertouch is transmitted or received over MIDI)

1 = Aftertouch is enabled and transmitted over MIDI

2 = Aftertouch is enabled and received over MIDI only, not from the internal keyboard.

3 = Aftertouch is enabled and both transmitted and received over MIDI

BRT – allows the brightness of the LCD display to be adjusted between minimum (00) and maximum (99).

CNT – allows the contrast of the LCD display to be adjusted between minimum (00) and maximum (99).

From left to right /bottom row

EN

V – indicates the current Firmware version Firmware updates are available through the SynthTribe app; and it is advisable to run the app regularly to check if there are updates available.

PAR-COM – the PAR-COM setting determines if the Wave receives and transmits MIDI CC messages that adjust the sound parameters.

0 = No Sound Parameter Changes are transmitted or received

1 = Sound Parameter Changes are transmitted only.

2 = Sound Parameter Changes are received only.

3 = Sound Parameter Changes are both transmitted and received

A good example of how to use PAR-COM would be the recording of MIDI CC data in a DAW: switch the Wave to Local Off and connect to the DAW using USB. Use the Wave's keyboard to play the selected sound and the controls to modify it. All MIDI data will be recorded into the DAW, and the DAW will control the Wave in real time. The recording can then be edited if necessary until you are happy with it; and played back as required.

FIRM – indicates the firmware emulation setting:

0 = Original firmware: this setting reproduces the original accurately.

1 = Enhanced: this setting introduces some enhancements:

- Disables LFO delay completely when DELAY=0
- Increases LFO->Loudness modulation range
- Leaves ADSR envelope 2 shape intact when ML=1 and adds Mod Wheel control (see Digital Menu below).
- Reduces Wave sweep range for MW=1/2 (see Digital Menu below)
- Envelopes are modelled after the PPG WAVE with semi linear characteristics

2 = Same as 1 but with exponential envelopes

OSC – indicated the oscillator quality setting:

0 = Original firmware

1 = Enhanced (less aliasing and improved wave sweeping)

LFO – indicated the LFO precision setting:

0 = Original firmware (LFO is quite wobbly, especially at high speeds)

1 = Modern (Improved timing and precision)

Digital Menu



The Digital Menu, selected by Digital button [30], shows the digital parameters of your selected program, and allows them to be edited. Parameters are navigated using the left and right cursor controls on the numeric keypad [28].

The two character control abbreviations refer to the source (first character) and destination (second character) of each setting, with the exception of the first two options, which reference the Upper wavetable and the Sub-oscillator. The sources are:

K – keyboard, or incoming MIDI notes.

M – modulation from the LFO.

B – pitchbend from the internal bend wheel, or from an external MIDI source.

T – aftertouch from the keyboard or from an external MIDI source.

V – velocity from the keyboard or from an external MIDI source.

These are variously applied to the following destinations:

W – Wavetable position.

F – the voltage controlled filter.

L - the VCA (loudness).

M – modulation intensity from the LFO.

With the exception of the pitchbend options, where D represents pitchbend destination and I represents its interval or range.

From left to right / top row:

PROG – shows the current program number, which can be changed in this menu

UW – changes from normal wavetable to Upper Wavetable when a wavetable is in use. The settings are:

0 – The selected Wavetable is used. WT Positions 60 - 63 and table wrapping is enabled

1 – The upper Wavetable is used, which contains the most interesting waves from all 30 wavetables

2 – The selected Wavetable is used. Wavetable locations 60 - 63 and wavetable wrapping are disabled. (Very useful for Wavetable sweeping)

When a transient is used the length options are:

0 – 128 samples

1 – 2048 samples

2 – 8192 samples

SW – indicates the sub-oscillator waveform status. There are seven settings:

0 – waveform is the same as the main oscillator, plus any modification made using the Waves Sub control [13].

1 – the sub-oscillator waveform is set only by the Waves Sub control [13].

2 – replaces envelope generator 1 with envelope generator 3 to sweep through the waves in the wavetable, as set by Env 1 – waves control [24].

3 – switches the sub-oscillator off.

4 – The sub-oscillator output is muted and used to hard-sync the main oscillator. The frequency of the main oscillator can be adjusted with the Waves Sub control [13]

5 – The sub-oscillator waveform is set only by the Waves Sub control [13]. Its output is used for ring-modulation with the main-oscillator

6 – The Sub-oscillator turns into a noise generator. The Noise level can be adjusted with the Waves Sub control [13]

KW – the keyboard controls the waveform for each note played. There are eight settings:

0 – the keyboard effect is switched off. All notes will have the waveform selected.

1-3 – as higher notes are played the waveform will shift to a higher waveform in the wavetable.

4 – each note will have its own waveform. The lowest C on the keyboard will have the waveform selected by the Waves Osc control [12]; each subsequent key will take the waveform below that in the table. If the first waveform is reached then the next note will take the highest waveform (63).

5-7 – stronger versions of 4, whereby waveforms are skipped.

KF – the frequency of the filter is tracked by the keyboard. There are eight settings:

0 – No keyboard tracking

1-2 – keyboard tracking is less than 100%

3 – keyboard tracking is approximately at 100% (double VCF frequency for every octave)

4-6 – keyboard tracking is between 100% and 200%

7 – keyboard tracking is approximately at 200%

KL – the loudness of the voltage controlled amplifier is tracked by the keyboard. There are eight settings:

0-3 – higher keys will sound louder than lower keys (subject to the settings on envelope generator 2).

4 – all keys have the same loudness.

5-7 – lower keys will sound louder than higher keys (subject to the settings on envelope generator 2).

MW – controls the wavetable position modulation by the modulation wheel and LFO.

0 – off.

1 – waveform LFO sweeping is controlled by Mod Wheel.

2 – waveform is swept directly by Mod Wheel.

3-9 – waveform is swept by the LFO by between 10% and 100%.

MF – controls filter frequency and resonance modulation by the modulation wheel and LFO.

0 – off.

1 – filter frequency LFO sweeping is controlled by the modulation wheel

2 – filter frequency can be controlled directly by the modulation wheel

3 – filter emphasis can be controlled directly by the modulation wheel

4-9 – filter frequency is modulated by the waveform LFO constantly by between 10% and 100%.

ML – controls whether the loudness of the VCA can be controlled by the modulation LFO. 0 is off, 1 is on. For emulation of the original this sets a constant low amplitude modulation by the LFO. However, when enhanced FIRMWARE in the USER menu is enabled this controls LFO loudness modulation of the VCA by the Mod Wheel

Left to right / bottom row:

GROUP – indicates whether the display is showing settings for Group A or Group B. Switched with Group button 33

BD – controls what the pitchbend wheel will affect. There are eight settings:

0 – pitchbend wheel is off.

1 – pitchbend (oscillator and sub-oscillator).

2 – filter frequency cutoff.

3 – waveform sweep.

4 – pitchbend (sub-oscillator only).

5 – pitchbend (oscillator and sub-oscillator) plus filter frequency cutoff.

6 – pitchbend (oscillator and sub-oscillator) plus waveform sweep.

7 – filter frequency cutoff and waveform sweep.

BI – controls the pitchbend wheel range. There are six settings:

0 – two semitones.

1 – major third (four semitones).

2 – fifth (seven semitones).

3 – one octave (twelve semitones).

4 – two octaves (24 semitones).

5 – one octave (12 semitones) in semitones steps.

TW - controls aftertouch for waveform sweeping and LFO modulation:

0 – off

1 – aftertouch controls waveform sweeping

2 – aftertouch controls LFO waveform modulation

TF - controls aftertouch for filter frequency sweeping and LFO modulation:

0 – off

1 – aftertouch controls filter frequency sweeping

2 – aftertouch controls LFO filter frequency modulation

TL - controls aftertouch for loudness and loudness modulation:

0 – off

1 – aftertouch controls loudness

2 – aftertouch controls LFO loudness modulation

TM – allows aftertouch control of the modulation wheel:

0 – off

1 – on.

VF - sets the sensitivity for velocity control of filter frequency cutoff:

0 – off

1 – low sensitivity.

2 – medium sensitivity.

3 – high sensitivity.

VL – sets the sensitivity of velocity control of loudness (VCA level):

0 – off

1 – low sensitivity.

2 – medium sensitivity.

3 – high sensitivity

EN

Tuning Menu



The Tuning Menu allows individual voices to be detuned, which can be used to provide interesting effects, especially in monophonic or duophonic modes. Parameters are navigated using the left and right cursor controls on the numeric keypad [28].

Left to right / top row:

PROG – shows current program number, which can be changed in this menu

DETU – indicates detuning between the sub-oscillator and the main oscillator. There are ten settings:

0 – no detuning.

1 – slight detuning.

2 – increased detuning.

3 – obvious detuning.

4 – strong detuning.

5 – detuned by five semitones up.

6 – detuned by one octave up.

7 – detuned by two octaves up.

8 – detuned by one octave down.

9 – detuned by two octaves down.

MO – switches pitch modulation of the main oscillator. 0 is off, 1 is on.

MS – switches pitch modulation of the sub-oscillator. 0 is off, 1 is on.

EO – switches pitch modulation of the main oscillator by envelope generator 3:

0 – off.

1 – on

2-9 – enable a portamento effect with increasing glide time

ES – switches pitch modulation of the sub-oscillator by envelope generator 3. 0 is off, 1 is on.

BI – sets the range of the bend wheel. There are six settings:

0 – two semitones.

1 – major third (four semitones).

2 – fifth (seven semitones).

3 – octave (12 semitones).

4 – two octaves (24 semitones).

5 – one octave (12 semitones) in semitone steps.

Left to right / bottom row:

GROUP – indicates whether the display is showing settings for Group A or Group B. Switched with Group button [33]

SEMIT – each of the eight voices can be detuned upwards, with the detuning indicated on the display. Values can either be entered for each voice using the numeric keypad [28] or by using the keyboard. 0 indicates that there is no detuning and is represented on the keyboard by the bottom C key. The largest possible detuning is 63 semitones when entered manually, or 48 when entered from the keyboard using the top C key. The octave buttons [41] have no effect in this instance.

The cursor will automatically move to the next voice when a key is pressed, but it is possible to navigate forward or back using the cursor controls on the numeric keypad [28], which is necessary when entering values manually.

It should also be noted that excessive SEMIT detuning can take higher notes out of the Wave's note range; and that therefore some notes will not sound when played, so care should be taken when using this function.

A good use of SEMIT detuning, which is found in many of the Wave presets, is to place the group B sound in a different octave to those of group A when layering, for example using keyboard mode 1. Group A is left as normal, group B tuned two octaves higher.





Another example would be to allow the detuning of group A voices against group B voices when using split keyboard modes, as in the following example:

In the program menu set the keyboard mode to 4 (Quad A/B) and a keyboard split point of your choice. This means that the odd numbered voices are assigned to the group A sound and the even to group B. In the Tuning menu set the SEMIT value of each odd numbered voice to 24, as shown below:



The upper keyboard (group A) notes will sound two octaves higher than those of the lower keyboard (group B); and the sub-oscillator will be noticeably detuned from the main in both groups.

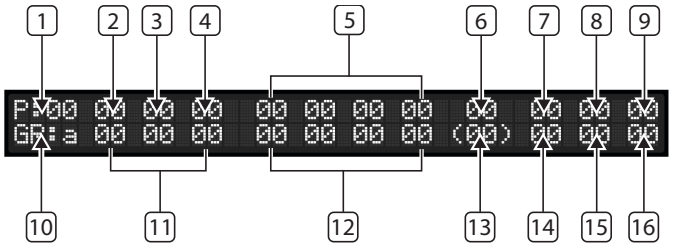
EN

Analog Menu

The analogue menu displays the stored positions of the analog controls on the top panel. Altering the position of any of the controls will replace the stored value with the actual position of the control, but this will not be written to memory unless the Data Transfer writing procedure is followed. Values can also be changed using the numeric keypad to move to the desired control and entering a number between 00 and 63 using the keypad or the data control.

The numbers represent the following settings and controls:

1. Program Number
2. LFO Delay
3. LFO Waveshape
4. LFO Rate
5. Envelope Generator 1 Attack/Decay/Sustain/Release
6. Filter Cutoff
7. Filter Emphasis
8. Waves Osc
9. Waves Sub



10. Group A or B
11. Envelope Generator 3 Attack/Decay/Attenuation
12. Envelope Generator 2 Attack/Decay/Sustain/Release
13. Modulation Wheel
14. Modifier Envelope 1 to VCF
15. Modifier Envelope 2 to Loudness
16. Modifier Envelope 1 to Waves

Sequencer Menu



The Sequencer Menu is accessed by pressing and holding the Shift button 34 and pressing the Settings button 35, or by pressing any of the sequencer controls 35 – 38.

Left to Right / top row:

PR – indicates the current program, which can be changed within the menu

MOD – indicates which mode the sequencer/arpeggiator is in. The first digit shows whether the sequencer or arpeggiator is active:

0 – the sequencer is active (second digit cannot be altered). See Using The Sequencer section below.

1 – arpeggiator 1 is active.

2 – arpeggiator 2 is active.

The second digit show which arpeggiator mode is selected when the arpeggiator is active:

1 – up.

2 – down.

3 – up and down.

4 – random.

5 – moving (the root of the arpeggiation moves through the notes held).

Using the simple example of a C major chord (C / E / G) the various arpeggiator modes would result in:

11: C, E, G, C, E, G etc.

12: G, E, C, G, E, C etc.

13: C, E, G, G, E, C etc.

14: E, G, E, C, G, C or similar.

15: C, E, G, E, C, G, G, C, E etc.

21 – 25: as 11 – 15 but with the octave above added.

When the arpeggiator is in use a footswitch connected to the Sustain Pedal socket on the rear panel 57 will hold the arpeggio without the need to key hands on the keyboard. A latching switch allows the foot to be removed as well. Note that when the arpeggio is held in this way the constituent notes cannot be changed or added to. When used with the arpeggiator the pedal will not affect the sustain function of ENV 2 as it usually would.

CLK – indicates the clock source and rate where appropriate. The first digit shows the source:

0 – internal.

1 – DIN MIDI.

2 – USB MIDI.

3 – Analog trigger (via the rear panel Sync In socket).

The second digit shows the clock rate for the internal clock and external analog trigger. The rate is fixed at 24 pulse per quarter note for the MIDI clocks, and when one of them is selected the second digit cannot be altered:

0 – 1 pulse per step

1 – 2 ppqn

2 – 24 ppqn

3 – 48 ppqn

So, for example, a setting of 02 would utilize the internal clock at a rate of 24 ppqn; whereas 30 would use an external analog clock from the Sync In socket 52 on the rear panel expecting 1 pps.

GAT – indicates the gate duration, which can be adjusted between 1 and 99. Default is 50.

DIV – indicates the clock division for sequenced or arpeggiated notes:

0 – ¼ note

1 – ⅛ note

2 – 1/16 note

3 – 1/32 note

4 – ¼ note triplet

5 – ⅛ note triplet

6 – 1/16 note triplet

EN

BPM – when the internal clock is selected then the bpm can be set in the range 40 ppm to 240 bpm, with a default setting of 100 bpm. When any of the external clock sources are selected then their bpm will be calculated and indicated.

MTN – indicates whether the metronome is active (1) or inactive (0).

OVP – the first digit indicates whether overdub is disabled (0); where new notes will replace what is currently programmed onto the current step, or enabled (1) where new notes will be added to the step until the maximum number (eight per step) is reached. The second digit indicates whether the keyboard will transpose the sequencer (0), which is the default, or play voices independently of it (1).

SAVE – typing 1 against SAVE saves the programmed sequence and the values of GATE and DIV as part of the current program.

STEP – shows the current step of the sequence to the left of the colon, and the total number of steps programmed to the right.

STATUS – indicates the current sequencer status: STOP, PLAY, RECORD or APPEND

To copy a sequence from one program memory to another load the program that you want to copy to, then move the cursor to the PR number, press Shift and type the number of the program that you want to copy from. The sequence will copy into your current program when you release the shift button.

Using The Sequencer

The Wave stores a polyphonic sequence of up to 64 steps, with up to eight notes on each step, in each program. There are four controls associated with the sequencer, which also have additional functions when using the Shift button.

To start recording a sequence press the Record button [36].

Any notes or chords that you play will be recorded into the sequence, and the step counters will advance by one. The </> buttons with shift can be used to navigate through steps that have been recorded. While in Record mode new notes can be added to a recorded step by navigating to the step and playing them, up to the maximum of eight notes per step if overdub mode is switched on. After a sequence has been recorded then append can be used to either add or replace notes on a selected step, depending on the overdub setting; or to add new steps to the sequence up to the maximum of 64.

When you have finished recording press the Record button again, or press Stop [37].

To play back the sequence press Play [38]. Pressing Play again will pause the sequence. A further press resumes playback from the pause point.

To store your sequence move the cursor to Save, then type 1 to complete the write procedure.

If an error is made while programming a sequence then the Clr Last (Shift and Stop) button can be used to erase the last note. Holding the buttons for more than two seconds will erase all steps.

Pressing any key on the keyboard while a sequence is playing will instantly transpose the sequence if the second digit of OVP is set to 0. If it is set to 1 then the keyboard will have no effect on the sequence, but will be used to play voices that the sequencer is not using. If VL (Velocity Loudness) is selected in the digital menu then the velocity of the key used to transpose the sequence will be applied to all steps while the sequence is transposed.

Sequencer use examples

Append: after you have programmed some notes and chords you may wish to add in additional steps. Start the Append process by pressing Shift and Record (the display will show APPEND) at bottom right). Press and hold the Shift button then use the <> keys on the numeric keypad to move through the recorded steps, which will sound as you navigate. Move to step 00 and whatever you play will be added before the original first step; move to the last step and new steps will be added at the end of the sequence, until step 64 is reached. Move to a step at any point between the beginning and the end and new steps will be added after the step you navigate to.

Overdub: the overdub facility can be used to add additional notes to steps that have already been recorded. First ensure that the leading digit of the OVP option is set to 1 (the second digit is not necessary for this function). Put the Wave into record mode, then record some notes. When you have recorded enough steps press Stop. Re-activating record mode allows you to add additional notes to each step; and to continue recording additional steps after the final step of the first pass if required. Note that the maximum number of notes allowed on each step is eight, so trying to add a ninth note is not possible.

EN

User Waves and Transients

One of the key features of the Wave synthesizer is the ability to import custom wavetables and transients, created using third-party tools. This can be done through the SynthTribe App, which you can connect to your WAVE synthesizer via USB on your PC or Mac. Once connected, launch the SynthTribe App and navigate to the Wavetable tab to access the import window.



Loading Files

To import a file, simply click or drag and drop the file at the top of the import window 1. The app accepts standard uncompressed Mono WAV files. Once loaded, the file's information and waveform will be displayed in the wave viewer 2. You can navigate through the waveform using the navigation slider 3.

Configuring Waveform Samples

Wavetables can have different sample lengths per waveform depending on the export settings of the third-party application. Common lengths include 128, 256, 512, 1024, 2048 and 4096 samples. To ensure full compatibility, the SynthTribe app automatically down-samples the wavetable to match the Wave synthesizer's requirement of 128 samples per waveform, with 64 waves per wavetable.

Use the Number of Samples window 4 to adjust the sample count per waveform based on your wavetable file. This adjustment will immediately update the waveform display to reflect the chosen sample set. If the file contains more than 64 waves, only the first 64 will be used, while any remaining slots will be left empty if fewer waves are present.

For transients, no down-sampling occurs, and the full wavetable memory is utilized. As a result, the Number of Samples option is disabled, and the entire transient is displayed in the viewer.

Selecting Destination

You can choose one of three destinations for your wave from the Destination drop-down menu 5:

- User Wavetables (locations 64–127)
- User Transients (locations 32–63)
- WT / TR Listen Buffers

Waves sent to the user wavetable or transient locations will be saved into the Wave's no-volatile memory. If either of the Listen Buffers is selected then the wave or transient of the current program will be replaced by three dashes (---) and the wave will not be saved. This is a useful way of previewing how a user wave or transient will sound without committing it to memory.

Setting Resolution and Naming

The Resolution window 6 gives the option of sending the waveform in 8 or 16 bit form. The Name window 7 shows the name of the file that was imported, with the option to edit in the window.

Sending the Wavetable or Transient

When all the parameters have been set satisfactorily use the Send button 8 to send the file to your chosen destination. This takes around 8 seconds, with the progress displayed in the app. Once the file has been successfully received the Wave's OLED display will momentarily show the file name and destination.

Additional Functions

The Flip and Maximize buttons 9 10 provide two extra tools for refining your waveforms:

- Flip reverses the wavetable, swapping the order of waves (e.g., wave 0 becomes wave 63). This can be useful when programming sounds, particularly when sweeping through the table with the ADSR 1 envelope.
- Maximize normalizes the waveform, scaling all values proportionally to ensure the highest peak reaches the maximum output level. This is helpful when the imported wavetable or transient has low audio levels, ensuring optimal volume without affecting the waveform's shape and dynamics.

Restore Factory WT/TR

The Restore Factory WT/TR button 11 restores the Wave to its factory state. Any user wavetables or transients that have been downloaded to the Wave will be erased. The procedure takes approximately five minutes and progress is shown on screen.

EN

Programs

The Wave comes with two banks of 100 programs from the factory. Bank 0 contains our Behringer sounds, Bank 1 contains some classic Wave programs.

Bank 0

PROG	KEYB	WT/TR	NAME	MOD Wheel	AT
0	Poly	21	Thingie	X	
1	Poly	74	Space Sweep	X	
2	Poly	68	Dynamic Tines	X	
3	A poly, B mono	29	Bass & Juno Sweep	X	X
4	Poly	24	Dynamic Prophet Brass	X	X
5	Poly	71	Stratos	X	
6	A poly, B mono	86	Bass & Voco Trem	X	
7	Poly	84	Wurli One	X	
8	Poly	67	Jazz Guitar	X	
9	Poly	27	Rotary B3	X	
10	A poly, B mono	29	Bass & PWM Strings	X	
11	Poly	0	Tomita's Bass	X	X
12	Poly	64	Church Pipes	X	
13	Poly	69	Dream Vibes	X	
14	A poly, B mono	68	Fretless & Tines	X	
15	Poly	2	BellTasia	X	
16	Poly	66	Tubular	X	
17	Poly	78	CZ Sawer	X	
18	Poly	6	FM Brass	X	X
19	Poly	16	WAVE Waves	X	X
20	Poly	73	FairVox	X	
21	Poly	32	PanFlute	X	X
22	Poly	33	Pizzicato	X	
23	Poly	34	Steel Guitar	X	
24	Poly	36	Xylophone	X	
25	Poly	38	Sail Away	X	
26	A poly, B mono	76	PWMstringer	X	
27	Poly	39	Soft Bell EP	X	
28	Poly	40	Dusty Rhodos	X	
29	Poly	41	Solo Trumpet	X	X
30	Poly	42	Mute Trumpet	X	X
31	Poly	43	Duuuh	X	X
32	A poly, B mono	84	Bass & Wurli	X	
33	Quad	30	Sync Solo	X	X
34	Poly	30	Synth Flute	X	X
35	Poly	31	Alto Sax	X	X
36	A poly, B mono	19	Retro Split	X	X
37	Quad A/B	29	Strings'n Solo	X	X
38	Poly	24	Matrix Strings	X	
39	Poly	65	Alpha Pad	X	
40	Poly	18	Cosmic Soup	X	
41	Poly	37	HarpOon	X	
42	Poly	24	Square Solo	X	X
43	Poly	22	Fantasia	X	
44	Poly	30	Synth Pizzi	X	
45	Poly	0	Super Saw	X	
46	Poly	14	Organ Chariot	X	
47	Poly	24	Noise Siren	X	
48	Poly	31	Piano X	X	
49	Poly	0	Percussion	X	
50	Poly	11	Drone Harmonica	X	
51	Poly	17	FanWAVEia	X	
52	Poly	30	Lyle's Solo	X	X
53	Poly	70	FM Bass1	X	
54	Poly	72	PWM Pad	X	
55	Poly	71	Solina 1	X	
56	Poly	20	808 Bass	X	
57	Poly	0	SYNC	X	X
58	A poly, B mono	6	WAVE SeqSplit	X	X
59	Poly	35	Synth Cello	X	X
60	Poly	24	SoundTrack	X	X
61	Poly	77	Solead	X	
62	Poly	82	LA Strings	X	X
63	Poly	17	Crystal Waves	X	
64	A poly, B mono	71	80s Rig	X	
65	A poly, B mono CV in	24	JunPad & CV-Bass	X	
66	Poly	85	Fendi Rhodos	X	
67	Poly	84	Funky Wurli	X	
69	Poly	18	Arpeggio PAD	X	
69	Poly	86	Ding Ding	X	
70	Poly	47	Universal	X	
71	Poly	44	Pipe Brass	X	X
72	Poly	46	Big Score	X	
73	Poly	48	Breathy Vox	X	
74	Poly	45	Hammer Harp	X	
75	Poly	19	Spring Pad	X	
76	Poly	23	Octave Bell	X	
77	Poly	25	Yoga Temple	X	
78	Poly	2	Steel Drum	X	
79	Poly	2	Short Bell	X	
80	Poly	8	Square Arp	X	X
81	Poly	9	Reso Harp	X	X
82	Poly	14	Organic Synth	X	
83	Poly	18	Steel Organ	X	
84	Poly	20	Robotic	X	
85	Poly	26	Reso Phase	X	

EN

PROG	KEYB	WT/TR	NAME	MOD Wheel	AT
86	Poly	19	Arcade Pad	X	
87	Poly	29	PWM Solo	X	
88	Poly	0	VCF SSM2044	X	
89	Quad	3	ARP Lead	X	
90	Poly	19	Spring Pad	X	
91	Poly	27	Reso Dive Organ	X	
92	Poly	0	ArpEratus	X	
93	Poly	26	EquiSAW	X	
94	Poly	14	Woody SQU	X	
95	Poly	14	Wave Chase	X	
96	Poly	14	Poly Bass	X	
97	Poly	14	Wave Slide	X	
98	Poly	14	Landscape	X	
99	Poly	14	Formant Drop	X	

Bank 1

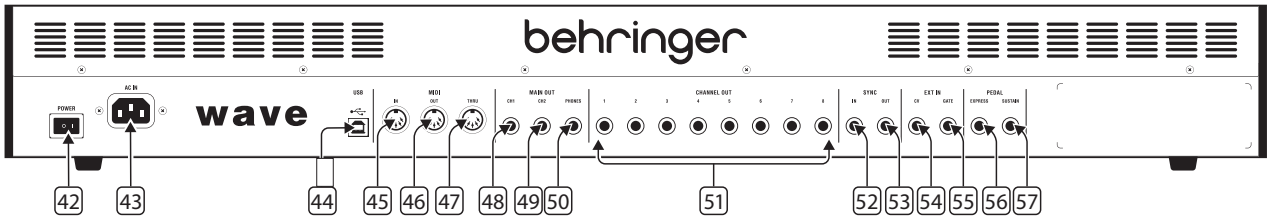
PROG	NAME	KEYB	WT/TR	AT
0	WAVE Swirl	Poly	17	
1	Modulated Vibraphone	Poly	8	
2	Harmonic Glide	Poly	0	
3	WAVE Tone 16	Poly	18	
4	Resonant Extended Synth	Poly	27	
5	Belli Pad	Poly	0	
6	KW Organ	Poly	14	
7	Waow!	Quad	18	
8	Organ 1	Poly	20	
9	Organ 2	Poly	20	
10	Bellgan	Quad	20	
11	Wave Organ	Poly	18	
12	Filter Mod	Poly	14	
13	WAVE Sitar	Poly	9	
14	Sawyer	Poly	0	
15	StringPan	Poly	28	
16	Inspired by Fender Keys	Poly	8	
17	Inspired by Electric Keys	Poly	8	
18	Env Sync	Poly	28	
19	Punchy with Quinte	Poly	24	
20	Wave Shaping	Quad	6	
21	Concert Piano	Poly	31	
22	Brass Bel	Quad	0	
23	Punchy	Poly	24	
24	Dynamic Spinet	Quad	13	
25	Bubble Square	Poly	0	
26	Cosmic Spinet	Poly	5	
27	Upright Piano	Poly	23	
28	Citrus	Quad	20	
29	Wave Bypass	Poly	15	
30	Synth	Poly	0	
31	Pulse Width Synth	Poly	28	
32	Resonant Synth Attack	Poly	14	
33	Tinkle	Poly	24	
34	Sawtooth Extended Synth	Poly	28	
35	Punchy with Resonance	Poly	9	
36	Punchy Metal	Quad	13	
37	Punchy Chime	Poly	2	
38	Electric 12-String	Quad	28	
39	Chime	Poly	4	
40	Long Space Chime	Poly	24	
41	Chime-like	Quad	4	
42	Delicate Punch	Poly	0	
43	Mallet Keys	Quad	2	
44	Vibrating Keys	Poly	2	
45	Punchy 3	Poly	15	
46	Saxophone	Poly	31	
47	Brass Section 1	Poly	26	
48	Trumpet Section	Quad	26	
49	Perc. / Extended	Poly	6	
50	Deep Brass	Poly	7	
51	Trombone Section	Poly	26	
52	Brass Ensemble	Quad	26	
53	Blended Brass	Quad	26	
54	High Register Flute	Poly	3	
55	Woodwind Flute	Poly	3	
56	String Ensemble 1	Quad	16	
57	String Ensemble 2	Quad	29	
58	Vox Ocean	Poly	27	
59	ChoirTasia	Quad	27	
60	Ethereal Strings	Poly	29	
61	Ethereal Strings	Quad	29	
62	Poly with Sync FX	Quad	28	
63	Echo Bell Pad	Poly	25	
64	Reed Instrument	Poly	10	
65	Concert Piano + Saxophone	A-Quad, B-Quad	31	
66	Studio Organ	Poly	14	
67	Cathedral Organ	Poly	14	
68	Orgish Bell	Poly	14	
69	High Perc	Poly	24	
70	Perc	Poly	24	

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PROG	NAME	KEYB	WT/TR	AT
71	Organ 3	Poly	14	
72	Organ 1 Redux	Poly	20	
73	Raw Choir	Poly	27	
74	Blended Choir	Quad	27	
75	Ethereal Choir	Quad	21	
76	Ethereal Choir 2	Quad	27	
77	FX	Poly	25	
78	Space Poly	Quad	16	
79	FX Poly	Quad	20	
80	Sync-stortion	Poly	28	
81	Elec Piano	Poly	30	
82	Poly Pad	Poly	30	
83	Funk Saw	Poly	14	
84	Simple Organ	Poly	30	
85	Glockenspiel	Quad	4	
86	Harp-une	Poly	29	
87	Chain Saw Bass	Poly	13	
88	Soundcard FM	Poly	26	
89	Full Keys	Quad	30	
90	Concert Piano Strings	Poly	31	
91	Concert Piano with Wave Tone	Poly	31	
92	Concert Piano with Sax	A-Quad, B-Quad	31	
93	Perc for Sequencer	Poly	0	
94	Delay	Poly	25	
95	Pitch Shift	Poly	0	
96	FX	Poly	13	
97	Quirky	Mono	13	
98	Delay Effect	Poly	25	
99	Sample & Hold	Poly	20	

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Rear Panel



42 **Power Switch**

43 **IEC Power Inlet –** connects to AC power source in the range 100 – 240 volt, using the supplied IEC cable.

44 **USB Socket –** connects to your computer for MIDI control and firmware updates.

45 **MIDI IN DIN –** allows control of the Wave from an external MIDI source using 5-pin DIN lead.

46 **MIDI OUT DIN –** outputs MIDI messages from the Wave to other connected equipment using 5-pin DIN lead.

47 **MIDI THRU DIN –** passes messages received at the MIDI IN socket to external MIDI equipment using 5-pin DIN lead.

48 **Channel 1 Output – un**balanced audio output using 6.35mm (¼") TS jack. If the Basis control 1 is set to minimum then the Wave will be in mono. When Basis is above minimum then this carries the left hand part of the signal.

49 **Channel 2 Output –** carries the right hand part of the signal when Basis is above minimum. Doubles up the mono output of Channel 1 when the Basis control is set to minimum.

50 **Phones –** stereo headphone output on 6.35mm TRS jack.

51 **Channel Outs – un**balanced outputs for individual voices on 6.35mm (¼") TS jacks. Voices will still feed the main left and right outputs when channel outs are in use.

52 **Sync In –** external synchronization input for the sequencer and arpeggiator, selected in the sequencer menu. The socket is TRS with the start/stop function on the ring and the clock on the tip.

53 **Sync Out –** outputs a trigger pulse in time with the internal sequencer and arpeggiator. The socket is TRS with the start/stop function on the ring and the clock on the tip.

54 **CV In –** allows control of group B voices, monophonically, from an external 1 volt/octave CV source, when in Keyboard Mode 9. CV range is -5 V to +5 V.

55 **Gate In –** allows the envelope generators to be controlled by an external gate, when in Keyboard Mode 9.

56 **Expression Pedal –** allows connection of a footpedal, such as the Behringer FC600, to control a variety of parameters based on the selected settings.

57 **Sustain Pedal –** allows notes to be held indefinitely at the sustain level of envelope generator 2 using a footswitch.

Calibration

The Wave is fully calibrated at the factory, but recalibration can be performed if needed. Four types of calibrations are available: VCA/VCF, CV Input, Mod Wheel, and Pitch Wheel. All calibrations can be initiated through the Synthtribe app, while VCA/VCF calibration can also be accessed directly from the synth via a specific key combination at startup. Instructions and results are shown on the OLED screen during the process.

VCA/VCF Calibration

For best results, allow the Wave to warm up for 45 minutes before starting the calibration. To begin, power cycle the Wave while holding the ANALOG 32 and GROUP 33 buttons. The OLED will display the calibration progress, which may take up to 200 seconds.

CV Input Calibration

This calibration requires playing a note on the Wave's keyboard or an external MIDI keyboard while supplying the corresponding voltage to the CV Input on the rear panel. Then, play a second note with a new CV input.

Mod Wheel Calibration

To calibrate the Mod Wheel, move it to its maximum position, then back to the minimum position as instructed on the OLED.

Pitch Wheel Calibration

For the Pitch Wheel calibration, move the wheel to its maximum position and hold it until prompted to release, then move it to the minimum position and hold until instructed to release.

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MIDI CCs

Apart from note on/off messages on the selected channel (see MIDI under Program Menu above) the Wave also responds to, and transmits, the following MIDI messages:

Control #	Range	Function	Transmit	Receive	Remarks
0	0-1	Bank Select MSB	X	X	
1	0-127	Modulation Wheel	X	X	
6	0-127	NRPN Data MSB	1.)	2.)	Data Value
7	0-127	Volume	1.)	2.)	MASTER VOLUME
8	0-127	Balance	1.)	2.)	BASIS
11	0-127	Expression Pedal	X	X	
12	0-127	DELAY	1.)	2.)	LFO Delay
13	0-127	WAVESHAPE	1.)	2.)	LFO Shape
14	0-127	RATE	1.)	2.)	LFO Rate
15	0-127	ATTACK 3	1.)	2.)	Env 3 - Attack
16	0-127	DECAY 3	1.)	2.)	Env 3 - Decay
17	0-127	ENV 3 ATT	1.)	2.)	Env 3 - Amount
18	0-127	A1	1.)	2.)	Env 1 - Attack
19	0-127	D1	1.)	2.)	Env 1 - Decay
20	0-127	S1	1.)	2.)	Env 1 - Sustain
21	0-127	R1	1.)	2.)	Env 1 - Release
22	0-127	A2	1.)	2.)	Env 2 - Attack
23	0-127	D2	1.)	2.)	Env 2 - Decay
24	0-127	S2	1.)	2.)	Env 2 - Sustain
25	0-127	R2	1.)	2.)	Env 2 - Release
26	0-127	WAVES-OSC	1.)	2.)	Main Osc Wave Tab Position
27	0-127	WAVES-SUB	1.)	2.)	Sub Osc Wave Tab Position
28	0-127	ENV 1 -> VCF	1.)	2.)	Env1 -> VCF Frequency Mod
29	0-127	ENV 2 -> LOUDNESS	1.)	2.)	Preset Volume
30	0-127	ENV 1 -> WAVES	1.)	2.)	Env1 -> Wave Pos Mod
31	0-2	Group Select	1.)	2.)	0=A, 1=B, 2=A+B
32	0-1	Bank Select LSB	X	X	
64	0/127	Sustain Pedal	X	X	
71	0-127	VCF-EMPHASIS	1.)	2.)	Filter Resonance
74	0-127	VCF-CUTOFF	1.)	2.)	Filter Frequency
98	0-127	NRPN Para# LSB	1.)	2.)	Lower 7 bits
99	0-127	NRPN Para# MSB	1.)	2.)	Higher 7 bits
120		All Sound Off		X	
121		Reset all Controllers		X	
122	0/127	Local Control	X	X	0=Off/127=On
123		All Notes Off		X	
					X = Yes
					1.) When PAR-COM=1,3
					2.) When PAR-COM=2,3

MIDI NRPNs

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The Wave also responds to, and transmits, MIDI NRPNS

MSB	LSB	14-bit	Parameter Name	Range	Notes
0	0	00	WAVETB	0-127	Wavetable (32-127 = User WT/Trans)
0	1	01	SPLIT	0-99	Split Point
0	2	02	KEYB	0-9	Keyboard Mode
0	3	03	DTF	0-7	Preset Data recall Mode
0	4	04	TUNE	0-99	Tuning (400-499)
0	5	05	EXP-PEDAL	0-5	Expression Pedal Function
0	6	06	TOUCH	0-3	Channel Aftertouch
0	7	07	BRT	0-99	LCD Brightness
0	8	08	CNT	0-99	LCD Contrast
0	9	09	FIRM	0-2	Firmware Mode
0	10	10	OSC	0-1	Oscillator Mode
0	11	11	LFO	0-1	LFO Mode
0	12	12	UW	0-2	Upper WT Select
0	13	13	SW	0-6	Sub Osc Mode
0	14	14	KW	0-7	Key -> Wave Mod
0	15	15	KF	0-7	Key -> Filter Mod
0	16	16	KL	0-7	Key -> Loudness Mod
0	17	17	MW	0-9	Mod Wheel -> Wave Mod
0	18	18	MF	0-9	Mod Wheel -> Filter Mod
0	19	19	ML	0-1	Mod Wheel -> Loudness Mod
0	20	20	BD	0-7	Bender Destination
0	21	21	BI	0-5	Bender Interval
0	22	22	TW	0-2	Touch -> Wave Mod
0	23	23	TF	0-2	Touch -> Filter Mod
0	24	24	TL	0-2	Touch -> Loudness Mode
0	25	25	TM	0-1	Touch -> Mod Wheel
0	26	26	VF	0-3	Velocity -> Filter Mod
0	27	27	VL	0-3	Velocity -> Loudness Mod
0	28	28	DETU	0-9	Sub Osc Detuning
0	29	29	MO	0-1	Mod -> Main Osc Pitch
0	30	30	MS	0-1	Mod -> Sub Osc Pitch
0	31	31	EO	0-9	Env3 -> Main Osc Pitch
0	32	32	ES	0-1	Env3 -> Main Sub Pitch
0	33	33	SEMIT V1	0-63	Voice 1 - Semi Offset
0	34	34	SEMIT V2	0-63	Voice 2 - Semi Offset
0	35	35	SEMIT V3	0-63	Voice 3 - Semi Offset
0	36	36	SEMIT V4	0-63	Voice 4 - Semi Offset
0	37	37	SEMIT V5	0-63	Voice 5 - Semi Offset
0	38	38	SEMIT V6	0-63	Voice 6 - Semi Offset
0	39	39	SEMIT V7	0-63	Voice 7 - Semi Offset
0	40	40	SEMIT V8	0-63	Voice 8 – Semi Offset
0	41	41	STATE	0-3	Arp/Seq - State (Stop,Play,Rec,Overdub)
0	42	42	MOD	0-25	Arp/Seq - Mode

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MSB	LSB	14-bit	Parameter Name	Range	Notes
0	43	43	CLK	0-34	Arp/Seq - Clock Selection
0	44	44	GAT	1-99	Arp/Seq - Gate Time
0	45	45	DIV	0-6	Arp/Seq - Sequencer Time
0	46	46	BPM	40-240	Arp/Seq - Speed (MSB/LSB)

Notes:

Data change commands (RX & TX)

1. Bn 63 00
2. Bn 62 *ParNum*
3. Bn 06 *Value*

(n = MIDI Chan. (0 - 15) *ParNum* = 0 - 37 *Value* = 0 - 127)

Bank Select (RX & TX)

1. Bn 00 00
2. Bn 20 *BankNum*

(n = MIDI Chan, (0 - 15) *BankNum* = 0 or 1)

All numbers are in HEX format.

SysEx

This section describes how the Wave responds to SysEx commands. Note that all numbers are Hex.

SysEx Data Format

MIDI SysEx transmissions always begin with data 0xF0, end with 0xF7.

WAVE Data Structure of MIDI SysEx Messages

F0	Manu ID	Model ID	Device ID	PKT	SPKT	Data	F7

Description of SysEx structure

Field (Hex)	Description
F0	System exclusive start.
00 20 32	Manufacturer ID (Behringer GmbH)
00 01 39	Model ID (WAVE)
Device ID	Always '0' for the WAVE
PKT	Packet Type
SPKT	Sub Packet Type (SPKT is absent for some packets)
Version	Data Package Version Byte (currently 0x0)
Data	Payload of packet
F7	End of system exclusive

SysEx Preset Data

Byte	Group	Menu	Parameter Name	Range	Notes
0-15		NAME	PRESET NAME	32-126	16x ASCII Character Bytes
16		PROGRAM	WAVETB	0-127	Wavetable (32-127 = User TR/WT)
17		PROGRAM	SPLIT	0-99	Split Point
18		PROGRAM	KEYB	0-9	Keyboard Mode
19	A	TUNING	DETU	0-9	Sub Osc Detuning
20	A	TUNING	MO	0-1	Mod -> Main Osc Pitch
21	A	TUNING	MS	0-1	Mod -> Sub Osc Pitch
22	A	TUNING	EO	0-1	Env3 -> Main Osc Pitch
23	A	TUNING	ES	0-1	Env3 -> Main Sub Pitch
24	A	TUNING	SEMIT V1	0-63	Voice 1 - Semi Offset
25	A	TUNING	SEMIT V2	0-63	Voice 2 - Semi Offset
26	A	TUNING	SEMIT V3	0-63	Voice 3 - Semi Offset
27	A	TUNING	SEMIT V4	0-63	Voice 4 - Semi Offset
28	A	TUNING	SEMIT V5	0-63	Voice 5 - Semi Offset
29	A	TUNING	SEMIT V6	0-63	Voice 6 - Semi Offset
30	A	TUNING	SEMIT V7	0-63	Voice 7 - Semi Offset
31	A	TUNING	SEMIT V7	0-63	Voice 8 - Semi Offset
32	A	ANALOG	DELAY	0-127	LFO Delay
33	A	ANALOG	WAVESHAPE	0-127	LFO Shape

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Byte	Group	Menu	Parameter Name	Range	Notes
34	A	ANALOG	RATE	0-127	LFO Rate
35	A	ANALOG	A1	0-127	Env 1 - Attack
36	A	ANALOG	D1	0-127	Env 1 - Decay
37	A	ANALOG	S1	0-127	Env 1 - Sustain
38	A	ANALOG	R1	0-127	Env 1 - Release
39	A	ANALOG	VCF-CUTOFF	0-127	Filter Frequency
40	A	ANALOG	VCF-EMPHASIS	0-127	Filter Resonance
41	A	ANALOG	WAVES-OSC	0-127	Main Osc Wave Tab Position
42	A	ANALOG	WAVES-SUB	0-127	Sub Osc Wave Tab Position
43	A	ANALOG	ATTACK 3	0-127	Env 3 - Attack
44	A	ANALOG	DECAY 3	0-127	Env 3 - Decay
45	A	ANALOG	ENV 3 ATT	0-127	Env 3 - Amount
46	A	ANALOG	A2	0-127	Env 2 - Attack
47	A	ANALOG	D2	0-127	Env 2 - Decay
48	A	ANALOG	S2	0-127	Env 2 - Sustain
49	A	ANALOG	R2	0-127	Env 2 - Release
50	A	ANALOG	MOD WHL	0-127	Mod Wheel Position
51	A	ANALOG	ENV 1 -> VCF	0-127	Env1 -> VCF Frequency Mod
52	A	ANALOG	ENV 2 -> LOUDNESS	0-127	Preset Volume
53	A	ANALOG	ENV 1 -> WAVES	0-127	Env1 -> Wave Pos Mod
54	A	DIGITAL	UW	0-2	Upper WT Select
55	A	DIGITAL	SW	0-6	Sub Osc Mode
56	A	DIGITAL	KW	0-7	Key -> Wave Mod
57	A	DIGITAL	KF	0-7	Key -> Filter Mod
58	A	DIGITAL	KL	0-7	Key -> Loudness Mod
59	A	DIGITAL	MW	0-9	Mod Wheel -> Wave Mod
60	A	DIGITAL	MF	0-9	Mod Wheel -> Filter Mod
61	A	DIGITAL	ML	0-1	Mod Wheel -> Loudness Mod
62	A	DIGITAL	BD	0-7	Bender Destination
63	A	DIGITAL	BI	0-5	Bender Interval
64	A	DIGITAL	TW	0-2	Touch -> Wave Mod
65	A	DIGITAL	TF	0-2	Touch -> Filter Mod
66	A	DIGITAL	TL	0-2	Touch -> Loudness Mode
67	A	DIGITAL	TM	0-1	Touch -> Mod Wheel
68	A	DIGITAL	VF	0-3	Velocity -> Filter Mod
69	A	DIGITAL	VL	0-3	Velocity -> Loudness Mod
70	B	TUNING	DETU	0-9	Sub Osc Detuning
71	B	TUNING	MO	0-1	Mod -> Main Osc Pitch
72	B	TUNING	MS	0-1	Mod -> Sub Osc Pitch
73	B	TUNING	EO	0-9	Env3 -> Main Osc Pitch
74	B	TUNING	ES	0-1	Env3 -> Main Sub Pitch
75	B	TUNING	SEMIT V1	0-63	Voice 1 - Semi Offset
76	B	TUNING	SEMIT V2	0-63	Voice 2 - Semi Offset
77	B	TUNING	SEMIT V3	0-63	Voice 3 - Semi Offset
78	B	TUNING	SEMIT V4	0-63	Voice 4 - Semi Offset
79	B	TUNING	SEMIT V5	0-63	Voice 5 - Semi Offset

EN

Byte	Group	Menu	Parameter Name	Range	Notes
80	B	TUNING	SEMIT V6	0-63	Voice 6 - Semi Offset
81	B	TUNING	SEMIT V7	0-63	Voice 7 - Semi Offset
82	B	TUNING	SEMIT V7	0-63	Voice 8 - Semi Offset
83	B	ANALOG	DELAY	0-127	LFO Delay
84	B	ANALOG	WAVESHAPE	0-127	LFO Shape
85	B	ANALOG	RATE	0-127	LFO Rate
86	B	ANALOG	A1	0-127	Env 1 - Attack
87	B	ANALOG	D1	0-127	Env 1 - Decay
88	B	ANALOG	S1	0-127	Env 1 - Sustain
89	B	ANALOG	R1	0-127	Env 1 - Release
90	B	ANALOG	VCF-CUTOFF	0-127	Filter Frequency
91	B	ANALOG	VCF-EMPHASIS	0-127	Filter Resonance
92	B	ANALOG	WAVES-OSC	0-127	Main Osc Wave Tab Position
93	B	ANALOG	WAVES-SUB	0-127	Sub Osc Wave Tab Position
94	B	ANALOG	ATTACK 3	0-127	Env 3 - Attack
95	B	ANALOG	DECAY 3	0-127	Env 3 - Decay
96	B	ANALOG	ENV 3 ATT	0-127	Env 3 - Amount
97	B	ANALOG	A2	0-127	Env 2 - Attack
98	B	ANALOG	D2	0-127	Env 2 - Decay
99	B	ANALOG	S2	0-127	Env 2 - Sustain
100	B	ANALOG	R2	0-127	Env 2 - Release
101	B	ANALOG	MOD WHL	0-127	Mod Wheel Position
102	B	ANALOG	ENV 1 -> VCF	0-127	Env1 -> VCF Frequency Mod
103	B	ANALOG	ENV 2 -> LOUDNESS	0-127	Preset Volume
104	B	ANALOG	ENV 1 -> WAVES	0-127	Env1 -> Wave Pos Mod
105	B	DIGITAL	UW	0-2	Upper WT Select
106	B	DIGITAL	SW	0-3	Sub Osc Mode
107	B	DIGITAL	KW	0-7	Key -> Wave Mod
108	B	DIGITAL	KF	0-7	Key -> Filter Mod
109	B	DIGITAL	KL	0-7	Key -> Loudness Mod
110	B	DIGITAL	MW	0-9	Mod Wheel -> Wave Mod
111	B	DIGITAL	MF	0-9	Mod Wheel -> Filter Mod
112	B	DIGITAL	ML	0-1	Mod Wheel -> Loudness Mod
113	B	DIGITAL	BD	0-7	Bender Destination
114	B	DIGITAL	BI	0-5	Bender Interval
115	B	DIGITAL	TW	0-2	Touch -> Wave Mod
116	B	DIGITAL	TF	0-2	Touch -> Filter Mod
117	B	DIGITAL	TL	0-2	Touch -> Loudness Mode
118	B	DIGITAL	TM	0-1	Touch -> Mod Wheel
119	B	DIGITAL	VF	0-3	Velocity -> Filter Mod
120	B	DIGITAL	VL	0-3	Velocity -> Loudness Mod

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Global SysEx

Byte	Parameter	Range	Synth Tribe	Notes	Parameters
0	MIDI	0-16	YES	MIDI Channel	0 = off
1	TTUNE	0-99	YES	Tuning: 400-499 Hz	
2	SYSEX	0/1	NO	SysEx RX/TX	on/off
3	LOCAL	0/1	YES	Local	on/off
4	EXP_PED	0-5	YES	Expression Pedal Mode	(see Table)
5	TOUCH	0-3	YES	Channel Aftertouch Mode	(see Table)
6	BRT	0-99	YES	LCD Brightness	
7	CNT	0-99	YES	LCD Contrast	
8	PAR-COM	0-3	YES	Edit Parameters MIDI RX/TX	(see Table)
9	FIRM	0/1/2	YES	Firmware Enhancements	off/on/on with Exp Env.
10	OSC	0/1	YES	Oscillator Enhancements	on/off
11	LFO	0/1	YES	LFO Enhancements	on/off
12	MOD	0-2 / 11-15 / 21-25	YES	Arp/Seq Mode	(see Table)
13	CLK	00-03 / 12/22/30-33	YES	Clock Source and Rate	(see Table)
14	GAT	1-99	YES	Gate Time	(see Table)
15	DIV	0-6	YES	Clock Division	(see Table)
16	BPM (MSB)	40-240	YES	Tempo (Bits 8-13)	
17	BPM (LSB)	40-240	YES	Tempo (Bits 0-7)	
18	MTN	0/1	YES	Metronome mode	on/off
19	OVP	00/01/10/11	YES	Overdub & Transpose modes	(see Table)

EXP_PED Parameters

0	Off
1	Loudness
2	VCF-Cutoff
3	VCF-Emphasis
4	Wavetable Position
5	Modulation Wheel

Par-Com

0	Off
1	Sound Paramater TX
2	Sound Parameter RX
3	Sound Parameter TX & RX

CLK

Value = Mode + 10*Clock_Rate

Mode	Clock Rate
0 = Internal	0 = 1 ppqn
1 = DIN MIDI	1 = 2 ppqn
2 = USB MIDI	2 = 24 ppqn
3 = Analog Trigger	3 = 48 ppqn

OVP

Value = Overdub + 10*Key_Transpose

Overdub	Key_Transpose
0 = Disabled	0 = Enabled
1 = Enabled	1 = Disabled

Touch

0	Off
1	MIDI TX
2	MIDI RX
3	MIDI TX & RX

MOD

Value = Mode_A + 10*Mode_B

Mode_A	Mode_B
0 = Sequencer	(0 when Mode_A=0)
1 = Arpeggiator 1	1 = Up
2 = Arpeggiator 2	2 = Down
	3 = Up & Down
	4 = Random
	5 = Moving

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DIV

0	¼ Note
1	⅛ Note
2	1/16 Note
3	1/32 Note
4	¼ Note Triplet
5	⅛ Note Triplet
6	1/16 Note Triplet

Sequencer SysEx Data

Byte	Parameter Name	Range	Notes
0	GAT	0-99	
1	DIV	0-6	
2	Step-1 / Voice-1	0-127	Seq Data
3	Step-1 / Voice-2	0-127	
4	Step-1 / Voice-3	0-127	
5	Step-1 / Voice-4	0-127	
6	Step-1 / Voice-5	0-127	
7	Step-1 / Voice-6	0-127	
8	Step-1 / Voice-7	0-127	
9	Step-1 / Voice-8	0-127	
10	Step-2 / Voice-1	0-127	
11	Step-2 / Voice-2	0-127	
…	…	…	
513	Step-64 / Voice-8	0-127	
514	Step-1 / Attr. Byte	0-127	Attribute Byte for Step-1
…			
577	Step-64 / Attr. Byte	0-127	Attribute Byte for Step-64

Wave Specific SysEx

PKT = 0x74 (Wave specific):

SPKT: 0x04 → Initiate Calibration

F0	Manu ID	Model ID	Device ID	0x74	SPKT	Calib Type	F7

Type: 0=VCA/VCF 1=CV-IN 2=MOD Wheel 3=PITCH Wheel

SPKT: 0x05 → Program Preset Sound Parameters Dump Request

F0	Manu ID	Model ID	Device ID	0x74	SPKT	Bank Num	Preset Num	F7

SPKT: 0x06 → Response for Program Preset Sound Parameters Dump Request / Dump to WAVE Preset Sound Parameters (and store to Preset#):

F0	Manu ID	Model ID	Device ID	0x74	SPKT	Bank Num	Preset Num	Version	D0	…	Dn	Checksum	F7

D0 . . .Dn: Preset Value (n = 120)
CheckSum = (u8)(D0+. . .+Dn)&0x7F

SPKT: 0x07 → Edit Buffer Sound Parameters Dump Request

F0	Manu ID	Model ID	Device ID	0x74	SPKT	F7

SPKT: 0x08 → Response for Edit Buffer Sound Parameters Dump Request / Dump Sound Parameters to WAVE Edit Buffer:

F0	Manu ID	Model ID	Device ID	0x74	SPKT	Version	D0	…	Dn	Checksum	F7

D0 . . .Dn: Preset Value (n = 120)
CheckSum = (u8)(D0+. . .+Dn)&0x7F

SPKT: 0x0A → Response for Dump to WAVE Preset Sound Parameters (and store to Preset#):

F0	Manu ID	Model ID	Device ID	0x74	SPKT	Bank Num	Preset Num	Status	F7

Status: 0 = Data Length/Checksum were wrong / 1 = Success

SPKT: 0x0C → Response to Dump Sound Parameters to WAVE Edit Buffer:

F0	Manu ID	Model ID	Device ID	0x74	SPKT	Status	F7

Status: 0 = Data Length/Checksum were wrong / 1 = Success

SPKT: 0x0D → Program Sequencer Data Dump Request

F0	Manu ID	Model ID	Device ID	0x74	SPKT	Bank Num	Preset Num	F7

SPKT: 0x0E → Response for Program Sequencer Data Dump Request / Dump to WAVE Sequencer Data (and store to Preset#):

F0	Manu ID	Model ID	Device ID	0x74	SPKT	Bank Num	Preset Num	Version	D0	…	Dn	Checksum	F7

D0 . . .Dn: Preset Value (n = 577)
CheckSum = (u8)(D0+. . .+Dn)&0x7F

SPKT: 0x0F → Edit Buffer Sequencer Data Dump Request

F0	Manu ID	Model ID	Device ID	0x74	SPKT	F7

SPKT: 0x10 → Response for Edit Buffer Sequencer Data Dump Request / Dump Sequencer Data to WAVE Edit Buffer:

F0	Manu ID	Model ID	Device ID	0x74	SPKT	Version	D0	…	Dn	Checksum	F7

D0 . . .Dn: Preset Value (n = 577)
CheckSum = (u8)(D0+. . .+Dn)&0x7F

SPKT: 0x12 → Response for Dump to WAVE Sequencer Data (and store to Preset#):

F0	Manu ID	Model ID	Device ID	0x74	SPKT	Bank Num	Preset Num	Status	F7

Status: 0 = Data Length/Checksum were wrong / 1 = Success

SPKT: 0x14 → Response to Dump Sequencer Data to WAVE Edit Buffer:

F0	Manu ID	Model ID	Device ID	0x74	SPKT	Status	F7

Status: 0 = Data Length/Checksum were wrong / 1 = Success

SPKT: 0x5D → WAVE User Wavetable Receive

F0	Manu ID	Model ID	Device ID	0x74	SPKT	WAVE Num	Position	Version	D0	…	Dn	Checksum	F7

WAVE Num:

0 → Store in Edit Listen Buffer and treat data as a wavetable.
1 → Store in Edit Listen Buffer and treat data as a transient (sample).
32-.127 → Store in User WT location (32-.63 is used as TR, 64-.127 is used as WT)

Position determines the Wave slot in Wavetable (0-63)
(After the Wavetable data for Position 63 has been received it will be stored.
If the Edit Buffer was the selected destination, it will be used as the active Wavetable).
D0 . . .Dn: Encoded Sample data (n = 308)

SPKT: 0x5E → Response for WAVE User Wavetable Receive

F0	Manu ID	Model ID	Device ID	0x74	SPKT	WAVE Num	Position	Status	F7

Status: 0 = Data Length/Checksum were wrong / 1 = Success

SPKT: 0x5F → TR/WT Slot Usage/Name List Data Dump Request

F0	Manu ID	Model ID	Device ID	0x74	SPKT	F7

SPKT: 0x60
Response for TR/WT Slot Usage/Name List Data Dump Request

F0	Manu ID	Model ID	Device ID	0x74	SPKT	Version	D0	…	Dn	Checksum	F7

D0 . . .Dn: Preset Value (n = 1535). The data contains:
0000-0015: TR-32 "Slot Name" (16 ASCII character bytes 0x20-0x7e)
(. . .)
0496-0511: TR-63 "Slot Name" (16 ASCII character bytes 0x20-0x7e)
0512-0527: WT-64 "Slot Name" (16 ASCII character bytes 0x20-0x7e)
(. . .)
1520-1535: TR-127 "Slot Name" (16 ASCII character bytes 0x20-0x7e)

CheckSum = (u8)(D0+. . .+Dn)&0x7F

PKT = 0x75 / 0x76 / 0x77 (Wave specific):

PKT: 0x75 → Request Global Parameters Values

F0	Manu ID	Model ID	Device ID	0x75	F7

PKT: 0x76 → Response for Global Parameters Dump Request /
Dump Global Parameters to WAVE:

F0	Manu ID	Model ID	Device ID	0x76	Version	D0	…	Dn	Checksum	F7

D0 . . .Dn: Global Data (n = 19)
CheckSum = (u8)(D0+. . .+Dn)&0x7F

BEHRINGER WAVE MIDI
SysEx Wave Table data package format

EN

The data block starts with 16 bytes which are ASCII characters for the TR/WT name:

Bytes 0-15: 0x20-0x7e (ASCII Character 32-126)

After that follows 128 x 16 bit of PCM sample data (signed INT - Hi-Byte, Lo-Byte)

However, since in Midi SysEx messages bytes can only use the lower 7 bit, the data is encoded in 7 byte blocks. An additional byte is added at the beginning of each block which contains the highest bits of the 7 bytes:

Source Data:

byte 0:	[a7]	[a6]	[a5]	[a4]	[a3]	[a2]	[a1]	[a0]
byte 1:	[b7]	[b6]	[b5]	[b4]	[b3]	[b2]	[b1]	[b0]
byte 2:	[c7]	[c6]	[c5]	[c4]	[c3]	[c2]	[c1]	[c0]
byte 3:	[d7]	[d6]	[d5]	[d4]	[d3]	[d2]	[d1]	[d0]
byte 4:	[e7]	[e6]	[e5]	[e4]	[e3]	[e2]	[e1]	[e0]
byte 5:	[f7]	[f6]	[f5]	[f4]	[f3]	[f2]	[f1]	[f0]
byte 6:	[g7]	[g6]	[g5]	[g4]	[g3]	[g2]	[g1]	[g0]

Gets transmitted as:

byte 0:	[0]	[g7]	[f7]	[e7]	[d7]	[c7]	[b7]	[a7]
byte 1:	[0]	[a6]	[a5]	[a4]	[a3]	[a2]	[a1]	[a0]
byte 2:	[0]	[b6]	[b5]	[b4]	[b3]	[b2]	[b1]	[b0]
byte 3:	[0]	[c6]	[c5]	[c4]	[c3]	[c2]	[c1]	[c0]
byte 4:	[0]	[d6]	[d5]	[d4]	[d3]	[d2]	[d1]	[d0]
byte 5:	[0]	[e6]	[e5]	[e4]	[e3]	[e2]	[e1]	[e0]
byte 6:	[0]	[f6]	[f5]	[f4]	[f3]	[f2]	[f1]	[f0]
byte 7:	[0]	[g6]	[g5]	[g4]	[g3]	[g2]	[g1]	[g0]

The encoding of the 256 bytes results in 36 blocks of 7+1 bytes. The remaining 4 bytes are encoded in the same way:

Source Data:

byte 0:	[a7]	[a6]	[a5]	[a4]	[a3]	[a2]	[a1]	[a0]
byte 1:	[b7]	[b6]	[b5]	[b4]	[b3]	[b2]	[b1]	[b0]
byte 2:	[c7]	[c6]	[c5]	[c4]	[c3]	[c2]	[c1]	[c0]
byte 3:	[d7]	[d6]	[d5]	[d4]	[d3]	[d2]	[d1]	[d0]

Gets transmitted as:

byte 0:	[0]	[--]	[--]	[--]	[d7]	[c7]	[b7]	[a7]
byte 1:	[0]	[a6]	[a5]	[a4]	[a3]	[a2]	[a1]	[a0]
byte 2:	[0]	[b6]	[b5]	[b4]	[b3]	[b2]	[b1]	[b0]
byte 3:	[0]	[c6]	[c5]	[c4]	[c3]	[c2]	[c1]	[c0]
byte 4:	[0]	[d6]	[d5]	[d4]	[d3]	[d2]	[d1]	[d0]

The total number of bytes in the data block is:

16 ASCII bytes + 36 x blocks of (7+1) bytes + one block of (4+1) bytes = **309 bytes**

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Troubleshooting

Q1. Voices are out of tune.

- Check if any of the SEMIT and/or DETU settings in the Tuning menu are enabled. Make sure global TUNE is set to 440 in the Program menu.
- Perform VCA and VCF calibration. For more information about how to perform calibration please refer to the calibration section above.
- Check M0, S0, E0, ES settings in the Digital menu.

Q2. The synth does not generate any sound.

- Check that output audio is connected to your sound system.
- Check that the master volume control ⓵ is above minimum level.
- Check that LOC is enabled in the Program menu.
- Make sure ENV1->Loudness is not set to Zero.

Q3. After touch does not work

- Check that TOUCH parameter in User menu is correctly configured.
- Check whether the other modulation sources are maximising the modulation.
- If you are using an external keyboard, check that it is transmitting on the right MIDI channel.

Q4. Wave does not respond to external MIDI.

- Verify that your midi source is correctly connected to Wave (MIDI DIN or USB) and that you are transmitting on the right MIDI channel. You can change the Wave MIDI channel from the Program menu (MIDI: --).
- If CC messages are involved, please verify that the PARAM settings in User menu are correctly configured.

Q5. Wave does not send MIDI data

- Check that Wave is connected to destination MIDI device.
- Check that the Wave MIDI channel corresponds to the destination MIDI channel.
- If CC messages are involved, please verify that the PARAM settings in the User menu are correctly configured.

Q5. Some of the modulation sources in the Digital menu do not affect the sound.

- In the WAVE some modulation sources can be summed up. This means that if the modulation limit is reached, any additional modulation will not have any effect.

Q6. Sequencer / Arpeggiator do not start when connected to external sequencer

- Make sure sequence is stored
- Check that Wave is connected to external device and MIDI channel is correct
- Check that input source is correctly configured in the Sequencer menu (CLK: --)

Q7. CV IN does not work properly.

- If notes are out of tune, perform CV Input calibration.
- Make sure Gate signal is connected to WAVE and your source device is transmitting the signals.
- Make sure your external device is working correctly.

Q8. SynthTribe (or other apps) do not detect the Wave over USB

- Try a different USB lead, especially if you are using a long one.
- If you are using a USB hub try bypassing it by making a direct connection between your computer and the Wave.

Q9. SynthTribe is unable to communicate with the Wave

- Check that the SYSEX parameter in the Program menu is set to 1.

Q10. Some notes in the upper octaves produce no sound

- Check if there is a large SEMIT detuning in place in the Tuning menu. Large SEMIT detunes can take the Wave above its MIDI note limit.

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Glossary

ADSR – Envelope generator with four stages: Attack, Decay, Sustain and Release.

Amplitude – The volume of a sound.

Aftertouch – MIDI data sent when pressure is applied to the keyboard after keys have been played, but while they are still being held.

Arpeggiator – a part of the synthesizer which causes the notes of a chord to be played individually as an arpeggio according to settings.

Attack Time – The first stage of the envelope. Specified as the time taken for the envelope to reach maximum level when keys are played.

Attenuate – To reduce the level of a signal or modulation source.

Bank – A collection of a number of programs.

Basis – controls the positioning of notes across the stereo field.

Cent – Unit of measurement for tuning. One semitone is divided into 100 cents.

Cutoff Frequency – The point at which the filter starts to cut frequencies.

Decay Time – The second stage of the envelope. Specified as the time taken for the sound level to drop from maximum to the sustain level while the played keys are being held.

Digital Audio Workstation (DAW) – A computer based software package that allows the recording, editing and playing back of audio and/or MIDI data.

Division – the fraction of a whole note (¼, ⅛ etc) that is set for use by the sequencer and arpeggiator.

Emphasis – The emphasis of frequencies centered on the cutoff frequency. Also known as Resonance.

Envelope Generator – Envelope generators can be used to contour the sound. Most commonly used to affect the amplitude (volume) of the sound they can also be used on filters and to affect pitch.

Filter – Filters attenuate the frequencies above or below their cutoff point, thus affecting the timbre of the sound.

Frequency Modulation (FM) – The use of one frequency to modulate another. Typically the use of a low frequency from a low frequency oscillator to add vibrato or tremolo to a sound, but could also be the use of one audio level frequency to modulate another, which would cause a change in timbre.

Global – parameters that affect all programs.

Group – each of the Wave's programs has two sounds, from group A and group B, which can be combined in different ways according to the keyboard mode selected.

Hertz (Hz) – Unit of measurement for frequencies. 1 Hz is one cycle per second.

Invert – change to the opposite, so a positive becomes negative for example.

Keyboard Tracking – Use of the notes played on the keyboard to adjust another parameter, for example.

KiloHertz (kHz) – Common abbreviation for one thousand Hz.

Low Frequency Oscillator (LFO) – An oscillator that runs at a low speed and is used to modulate other parts of the synthesizer.

Musical Instrument Digital Interface (MIDI) – a protocol that allows musical instruments, other peripherals and DAWs to pass data according to a defined standard.

MIDI Clock – a timing signal that is sent as part of the MIDI data.

MIDI Message – data transmitted from one MIDI device to another that constitutes an instruction.

Mix – The balance between two or more signals.

Modulation – The use of sources to control a parameter of a destination.

Monophonic – Only allowing one note to be played at a time.

Noise – A random sound comprising of all frequencies.

Note Priority – Determines which note is played when the maximum number is exceeded. Typically lowest, highest or last.

Octave – A measure of pitch.

Oscillator – The basic sound source of the synthesizer.

Oscillator Sync – The process by which the cycle of one oscillator is synchronized to the cycle of another.

Output – Can refer both to the signal sent out from one part of the synthesizer to another, or to the physical sockets used to connect to external equipment.

Overdub – sets whether notes played on a sequencer step are added to the existing notes on that step; or whether they replace them.

Parameter – A setting whose value can be changed.

Pitch Bend – Changing the pitch of a note up or down while it is being played.

Polyphonic – Capable of playing more than one note at a time, expressed as a number of voices.

Portamento – The effect of 'gliding' the pitch between notes rather than changing instantly.

Program – A stored combination of parameters that make up a sound.

Pulse Wave – A wave similar to a square wave, but whose symmetry can be changed.

Pulse Width Modulation – The modulation of the symmetry of a pulse wave.

Rate – The speed at which an action takes place.

Release Time – The final stage of the envelope. Specified as the time taken for the envelope to reach zero once keys have been released.

Sample & Hold (S&H) – the sampling of a waveform, typically that of an LFO or noise source, to provide a series of voltages at a set rate.

Sawtooth – A waveform resembling the teeth of a saw, with an instantaneous leading edge followed by a gradual decline to zero point.

Self Oscillation – The point at which a filter starts to produce a sine wave output owing to excessive use of emphasis (resonance).

Semitone – A measure of pitch. Each octave contains 12 semitones.

Sequencer – A part of the synthesizer which can be programmed with a series of notes and/or chords which are then repeated back at a selected tempo.

Signal Flow – The path of a signal from one part of the synthesizer to another.

Sine Wave – A smooth waveform that contains only the fundamental frequency with no harmonics.

Square Wave – a symmetrical waveform which changes instantaneously from zero state to full.

Sub-Oscillator – In the case of the WAVE it is simply a 'second Oscillator'.

Sustain Level – The third stage of the envelope. This is the level that the envelope holds at after decay until keys are released.

Synchronization (Sync) – Co-ordinating the timing of devices where one is the master and the other(s) are synchronized to it.

System Exclusive (SysEx) – a system of device-specific messages that allows control over the instrument's functions.

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Transient – a sample that is used in place of a wavetable (see below) whose start, end and looping can be manually adjusted or modulated.

Trigger – The activation of a function, for example pressing a key to start the Envelope cycle.

Tune – The adjustment of the pitch of an instrument to be the same as that of another instrument; or the adjustment of one oscillator to be in tune with the other.

Unison – Two or more voices played together on the same key(s).

Universal Serial Bus (USB) – An interface that can be used to connect your synthesizer to a DAW, or to receive firmware updates.

Velocity – The strength at which the keyboard is played, which can be used as a modulation source.

Voltage Controlled Amplifier (VCA) – An amplifier whose level can be adjusted by control voltages, for example from an envelope generator.

Wavetable – the basic audio source for the Wave. Each wavetable contains 64 128 bit waveshapes, which can be 'swept' manually or by a modulation source.

SynthTribe

The SynthTribe app is a convenient way to quickly change some commonly used parameters on the Wave without using menus; and to check for firmware updates. When you first connect your Wave to SynthTribe it will automatically pick up the Wave's settings for the parameters concerned. Please note that this is the only communication from Wave to Synthtribe: if you change any settings on the Wave subsequently SynthTribe will not update unless it is closed and then started again.

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Other important information

EN Important information

1. Product Registration

To ensure optimal service and support, we encourage you to register your Music Tribe product immediately after purchase at musictribe.com. Registration allows us to provide faster and more efficient assistance in the event of a service request or warranty claim. It also ensures that you receive important product updates, safety notices, and documentation relevant to your product.

During registration, you will also have access to the full terms and conditions of our Limited Warranty.

Please note that warranty coverage and consumer rights may vary by country or jurisdiction. Refer to the terms applicable in your region at the time of registration or via our support portal.

2. Technical Support and Malfunctions

If you experience a malfunction or require assistance, and a Music Tribe Authorized Reseller is not available in your area, please refer to the list of Authorized Fulfillers available under the "Support" section at musictribe.com.

If your country is not listed, we recommend using our Online Support resources as a first step, which may help resolve your issue without the need for a return.
For warranty-related matters, please ensure you submit an online warranty claim before returning the product. Unauthorized returns or unregistered claims may result in processing delays or denial of warranty coverage.

3. Unauthorized Repairs and Modifications

To preserve warranty coverage, do not open, disassemble, or attempt to repair the product yourself. Repairs or modifications performed by unauthorized persons or service centers will void the warranty and may compromise product safety or performance.

Before connecting your unit to a power source, ensure that the input voltage matches the rating indicated on your product. Incorrect voltage may cause permanent damage and void the warranty.

If the fuse requires replacement, only use fuses of the same type and rating. Use of incorrect fuses may create a fire or safety hazard and will invalidate all warranty protection.

4. Proper Use and Environment

Ensure that your Music Tribe product is used in accordance with the product manual and within the recommended operating conditions. Exposure to excessive moisture, dust, heat, or impact may result in malfunction and void the warranty.

ES Aspectos importantes

1. Registro del Producto

Para garantizar un servicio y soporte óptimos, le recomendamos registrar su producto Music Tribe inmediatamente después de la compra en musictribe.com. El registro nos permite brindar asistencia más rápida y eficiente en caso de una solicitud de servicio o reclamación de garantía. También asegura que reciba actualizaciones importantes del producto, avisos de seguridad y documentación relevante para su producto.

Durante el registro, también tendrá acceso a los términos y condiciones completos de nuestra Garantía Limitada.

Tenga en cuenta que la cobertura de la garantía y los derechos del consumidor pueden variar según el país o la jurisdicción. Consulte los términos aplicables en su región en el momento del registro o a través de nuestro portal de soporte.

2. Soporte Técnico y Fallos

Si experimenta una falla o necesita asistencia y no hay un Distribuidor Autorizado de Music Tribe en su área, consulte la lista de Centros Autorizados disponible en la sección "Soporte" en musictribe.com.

Si su país no está en la lista, le recomendamos utilizar nuestros recursos de Soporte en Línea como primer paso, lo que podría ayudarle a resolver su problema sin necesidad de una devolución. Para asuntos relacionados con la garantía, asegúrese de enviar una reclamación de garantía en línea antes de devolver el producto. Las devoluciones no autorizadas o reclamaciones no registradas pueden resultar en demoras en el procesamiento o en la denegación de la cobertura de garantía.

3. Reparaciones y Modificaciones No Autorizadas

Para mantener la cobertura de garantía, no abra, desmonte ni intente reparar el producto por su cuenta. Las reparaciones o modificaciones realizadas por personas no autorizadas o centros de servicio no autorizados anularán la garantía y pueden comprometer la seguridad o el rendimiento del producto.

Antes de conectar su unidad a una fuente de alimentación, asegúrese de que el voltaje de entrada coincida con el indicado en su producto. Un voltaje incorrecto puede causar daños permanentes y anular la garantía.

Si el fusible necesita ser reemplazado, utilice únicamente fusibles del mismo tipo y clasificación. El uso de fusibles incorrectos puede generar riesgos de incendio o seguridad y anulará toda la protección de garantía.

4. Uso Adecuado y Medio Ambiente

Asegúrese de que su producto Music Tribe se use de acuerdo con el manual del producto y dentro de las condiciones operativas recomendadas. La exposición a humedad excesiva, polvo, calor o impactos puede provocar fallos y anular la garantía.

FR Informations importantes

1. Enregistrement du Produit

Pour garantir un service et un support optimaux, nous vous encourageons à enregistrer votre produit Music Tribe immédiatement après l'achat sur musictribe.com. L'enregistrement nous permet de fournir une assistance plus rapide et plus efficace en cas de demande de service ou de réclamation de garantie. Il garantit également que vous receviez des mises à jour importantes sur le produit, des avis de sécurité et de la documentation pertinente.

Lors de l'enregistrement, vous aurez également accès aux conditions générales complètes de notre Garantie Limitée.

Veuillez noter que la couverture de la garantie et les droits des consommateurs peuvent varier selon le pays ou la juridiction. Consultez les conditions applicables dans votre région au moment de l'enregistrement ou via notre portail d'assistance.

2. Support Technique et Pannes

Si vous rencontrez une panne ou avez besoin d'assistance et qu'aucun Revendeur Agréé Music Tribe n'est disponible dans votre région, veuillez consulter la liste des Centres Autorisés disponible dans la section "Support" sur musictribe.com.

Si votre pays ne figure pas dans la liste, nous vous recommandons d'utiliser nos ressources de Support en Ligne en premier recours, ce qui pourrait résoudre votre problème sans nécessiter un retour. Pour les questions de garantie, veuillez soumettre une réclamation de garantie en ligne avant de retourner le produit. Les retours non autorisés ou les réclamations non enregistrées peuvent entraîner des retards de traitement ou un refus de couverture de garantie.

3. Réparations et Modifications Non Autorisées

Pour préserver la couverture de garantie, ne démontez pas et ne tentez pas de réparer le produit vous-même. Les réparations ou modifications effectuées par des personnes ou des centres de service non autorisés annuleront la garantie et peuvent compromettre la sécurité ou les performances du produit.

Avant de connecter votre unité à une source d'alimentation, assurez-vous que la tension d'entrée correspond à celle indiquée sur votre produit. Une tension incorrecte peut causer des dommages permanents et annuler la garantie.

Si le fusible doit être remplacé, utilisez uniquement des fusibles du même type et de la même valeur nominale. L'utilisation de fusibles inappropriés peut créer un risque d'incendie ou de sécurité et annulera toute protection de garantie.

4. Utilisation Appropriée et Environnement

Assurez-vous que votre produit Music Tribe est utilisé conformément au manuel du produit et dans les conditions d'exploitation recommandées. Une exposition excessive à l'humidité, à la poussière, à la chaleur ou aux chocs peut entraîner un dysfonctionnement et annuler la garantie.

DE Weitere wichtige Informationen

1. Produktregistrierung

Um optimalen Service und Support zu gewährleisten, empfehlen wir Ihnen, Ihr Music Tribe-Produkt direkt nach dem Kauf unter musictribe.com zu registrieren. Die Registrierung ermöglicht es uns, im Falle einer Serviceanfrage oder Garantieanspruchs schneller und effizienter zu helfen. Sie stellt außerdem sicher, dass Sie wichtige Produktaktualisierungen, Sicherheitshinweise und relevante Dokumentationen erhalten.

Während der Registrierung haben Sie auch Zugriff auf die vollständigen Bedingungen unserer beschränkten Garantie.

Bitte beachten Sie, dass der Garantieumfang und die Verbraucherrechte je nach Land oder Rechtsraum variieren können. Bitte konsultieren Sie die für Ihre Region geltenden Bedingungen zum Zeitpunkt der Registrierung oder über unser Support-Portal.

2. Technischer Support und Fehlfunktionen

Sollten Sie eine Fehlfunktion feststellen oder Unterstützung benötigen und in Ihrer Region kein autorisierter Music Tribe-Händler verfügbar sein, konsultieren Sie bitte die Liste der autorisierten Servicezentren im Bereich "Support" auf musictribe.com.

Falls Ihr Land nicht aufgeführt ist, empfehlen wir die Nutzung unserer Online-Support-Ressourcen als ersten Schritt, da dies Ihr Problem möglicherweise ohne Rücksendung lösen kann. Bei Garantiefragen stellen Sie bitte sicher, dass Sie einen Online-Garantieantrag einreichen, bevor Sie das Produkt zurücksenden. Nicht autorisierte Rücksendungen oder nicht registrierte Ansprüche können zu Verzögerungen oder Ablehnung der Garantieleistung führen.

3. Nicht autorisierte Reparaturen und Modifikationen

Um die Garantieabdeckung zu erhalten, öffnen, zerlegen oder reparieren Sie das Produkt nicht selbst. Reparaturen oder Modifikationen durch nicht autorisierte Personen oder Servicezentren führen zum Erlöschen der Garantie und können die Sicherheit oder Leistung des Produkts beeinträchtigen.

Bevor Sie Ihr Gerät an eine Stromquelle anschließen, stellen Sie sicher, dass die Eingangsspannung der auf dem Produkt angegebenen entspricht. Eine falsche Spannung kann dauerhafte Schäden verursachen und die Garantie erlöschen lassen.

Falls die Sicherung ersetzt werden muss, verwenden Sie nur Sicherungen desselben Typs und derselben Nennwerte. Die Verwendung ungeeigneter Sicherungen kann zu Brand- oder Sicherheitsrisiken führen und hebt den Garantieanspruch auf.

4. Richtige Verwendung und Umgebung

Stellen Sie sicher, dass Ihr Music Tribe-Produkt gemäß dem Produkthandbuch und innerhalb der empfohlenen Betriebsbedingungen verwendet wird. Eine übermäßige Einwirkung von Feuchtigkeit, Staub, Hitze oder Stößen kann zu Fehlfunktionen führen und die Garantie erlöschen lassen.

PT Outras Informações Importantes

1. Registro do Produto

Para garantir um serviço e suporte ideais, recomendamos que você registre seu produto Music Tribe imediatamente após a compra em musictribe.com. O registro nos permite fornecer assistência mais rápida e eficiente em caso de solicitação de serviço ou reivindicação de garantia. Também garante que você receba atualizações importantes do produto, avisos de segurança e documentação relevante.

Durante o registro, você também terá acesso aos termos e condições completos da nossa Garantia Limitada.

Observe que a cobertura da garantia e os direitos do consumidor podem variar de acordo com o país ou jurisdição. Consulte os termos aplicáveis à sua região no momento do registro ou através do nosso portal de suporte.

2. Suporte Técnico e Falhas

Se você encontrar um problema ou precisar de assistência e não houver um Revendedor Autorizado Music Tribe disponível em sua região, consulte a lista de Centros Autorizados na seção "Suporte" em musictribe.com.

Se o seu país não estiver na lista, recomendamos o uso dos nossos recursos de Suporte Online como primeiro passo, pois isso pode ajudar a resolver o seu problema sem a necessidade de devolução. Para questões de garantia, certifique-se de enviar uma solicitação de garantia online antes de devolver o produto. Devoluções não autorizadas ou reivindicações não registradas podem causar atrasos no processamento ou recusa na cobertura da garantia.

3. Reparos e Modificações Não Autorizados

Para manter a cobertura da garantia, não abra, desmonte ou tente reparar o produto por conta própria. Reparos ou modificações feitas por pessoas não autorizadas ou centros de serviço não autorizados anularão a garantia e podem comprometer a segurança ou o desempenho do produto.

Antes de conectar sua unidade a uma fonte de energia, certifique-se de que a voltagem de entrada corresponde à indicada no produto. Voltagem incorreta pode causar danos permanentes e anular a garantia.

Se for necessário substituir o fusível, use apenas fusíveis do mesmo tipo e classificação. O uso de fusíveis incorretos pode criar risco de incêndio ou segurança e invalidará toda a proteção da garantia.

4. Uso Adequado e Ambiente

Certifique-se de que seu produto Music Tribe seja usado de acordo com o manual do produto e dentro das condições de operação recomendadas. Exposição excessiva à umidade, poeira, calor ou impacto pode causar falhas e anular a garantia.

IT Informazioni importanti

1. Registrazione del Prodotto

Per garantire un servizio e un supporto ottimali, ti invitiamo a registrare il tuo prodotto Music Tribe immediatamente dopo l'acquisto su musictribe.com. La registrazione ci consente di fornire assistenza più rapida ed efficiente in caso di richiesta di servizio o reclamo in garanzia. Garantisce inoltre che tu riceva aggiornamenti importanti sul prodotto, avvisi di sicurezza e documentazione pertinente.

Durante la registrazione, avrai anche accesso ai termini e condizioni completi della nostra Garanzia Limitata.

Si prega di notare che la copertura della garanzia e i diritti dei consumatori possono variare a seconda del paese o della giurisdizione. Consulta i termini applicabili nella tua regione al momento della registrazione o tramite il nostro portale di supporto.

2. Supporto Tecnico e Malfunzionamenti

Se riscontri un malfunzionamento o hai bisogno di assistenza e non è disponibile un Rivenditore Autorizzato Music Tribe nella tua zona, consulta l'elenco dei Centri Autorizzati nella sezione "Supporto" su musictribe.com.

Se il tuo paese non è elencato, ti consigliamo di utilizzare le nostre risorse di Supporto Online come primo passo, poiché potrebbero aiutarti a risolvere il problema senza la necessità di un reso. Per questioni relative alla garanzia, assicurati di inviare una richiesta di garanzia online prima di restituire il prodotto. I resi non autorizzati o le richieste non registrate possono causare ritardi nell'elaborazione o il rifiuto della copertura della garanzia.

3. Riparazioni e Modifiche Non Autorizzate

Per mantenere la copertura della garanzia, non aprire, smontare o tentare di riparare il prodotto da solo. Le riparazioni o modifiche effettuate da persone o centri di assistenza non autorizzati annulleranno la garanzia e potrebbero compromettere la sicurezza o le prestazioni del prodotto.

Prima di collegare l'unità a una fonte di alimentazione, assicurati che la tensione di ingresso corrisponda a quella indicata sul prodotto. Una tensione errata può causare danni permanenti e annullare la garanzia.

Se è necessario sostituire il fusibile, utilizzare solo fusibili dello stesso tipo e valore nominale. L'uso di fusibili errati può creare un rischio di incendio o sicurezza e invaliderà tutta la protezione della garanzia.

4. Uso Adeguato e Ambiente

Assicurati che il tuo prodotto Music Tribe venga utilizzato in conformità con il manuale del prodotto e nelle condizioni operative consigliate. L'esposizione a umidità eccessiva, polvere, calore o urti può causare malfunzionamenti e annullare la garanzia.

Other important information

NL Belangrijke informatie

1. Productregistratie

Om optimale service en ondersteuning te garanderen, raden we u aan om uw Music Tribe-product direct na aankoop te registreren op musictribe.com. Registratie stelt ons in staat om sneller en efficiënter hulp te bieden bij een serviceverzoek of garantieclaim. U ontvangt ook belangrijke productupdates, veiligheidswaarschuwingen en relevante documentatie.

Tijdens de registratie krijgt u ook toegang tot de volledige voorwaarden van onze Beperkte Garantie.

Houd er rekening mee dat garantievoorwaarden en consumentenrechten per land of rechtsgebied kunnen verschillen. Raadpleeg de toepasselijke voorwaarden in uw regio op het moment van registratie of via ons supportportaal.

2. Technische Ondersteuning en Storingen

Als u een storing ervaart of hulp nodig heeft en er geen geautoriseerde Music Tribe-verkoper in uw regio beschikbaar is, raadpleeg dan de lijst met geautoriseerde servicecentra in de sectie "Support" op musictribe.com.

Als uw land niet is vermeld, raden we aan om eerst onze online ondersteuningsbronnen te gebruiken, omdat deze mogelijk uw probleem kunnen oplossen zonder dat een retourzending nodig is. Voor garantiekwesties dient u een online garantieclaim in te dienen voordat u het product retourneert. Niet-geautoriseerde retourzendingen of niet-geregistreerde claims kunnen vertragingen veroorzaken of de garantie ongeldig maken.

3. Niet-geautoriseerde Reparaties en Wijzigingen

Om de garantie te behouden, mag u het product niet openen, demonteren of zelf proberen te repareren. Reparaties of wijzigingen uitgevoerd door niet-geautoriseerde personen of servicecentra zullen de garantie ongeldig maken en kunnen de veiligheid of prestaties van het product in gevaar brengen.

Controleer vóór het aansluiten op een stroombron of de ingangsspanning overeenkomt met de waarde die op uw product is aangegeven. Een verkeerde spanning kan permanente schade veroorzaken en de garantie ongeldig maken.

Als de zekering vervangen moet worden, gebruik dan alleen zekeringen van hetzelfde type en dezelfde specificatie. Het gebruik van onjuiste zekeringen kan brand- of veiligheidsrisico's veroorzaken en zal de garantie laten vervallen.

4. Juiste Gebruik en Omgeving

Zorg ervoor dat uw Music Tribe-product wordt gebruikt volgens de handleiding en binnen de aanbevolen bedrijfsomstandigheden. Blootstelling aan overmatige vochtigheid, stof, hitte of schokken kan storingen veroorzaken en de garantie ongeldig maken.

SE Viktig information

1. Produktregistrering

För att säkerställa optimal service och support rekommenderar vi att du registrerar din Music Tribe-produkt omedelbart efter köpet på musictribe.com. Registreringen gör det möjligt för oss att ge snabbare och effektivare support vid serviceförfrågningar eller garantianspråk. Du får även viktiga produktuppdateringar, säkerhetsmeddelanden och relevant dokumentation.

Vid registreringen får du också tillgång till de fullständiga villkoren för vår Begränsade Garanti.

Observera att garantitäckning och konsumenträttigheter kan variera beroende på land eller jurisdiktion. Se de villkor som gäller i din region vid registreringen eller via vår supportportal.

2. Teknisk Support och Fel

Om du upplever ett fel eller behöver hjälp och en auktoriserad Music Tribe-återförsäljare inte är tillgänglig i ditt område, vänligen se listan över auktoriserade servicecenter under avsnittet "Support" på musictribe.com.

Om ditt land inte finns med på listan rekommenderar vi att du först använder våra online-supportresurser, eftersom de kan hjälpa dig att lösa problemet utan att behöva returnera produkten. För garantiärenden, se till att skicka in ett online-garantianspråk innan du returnerar produkten. Obehöriga returer eller icke-registrerade anspråk kan leda till förseningar eller avslag på garantitäckning.

3. Obehöriga Reparationer och Modifieringar

För att behålla garantin ska du inte öppna, demontera eller försöka reparera produkten själv. Reparationer eller modifieringar som utförs av obehöriga personer eller servicecenter gör garantin ogiltig och kan påverka produktens säkerhet eller prestanda.

Innan du ansluter enheten till en strömkälla, se till att ingångsspänningen matchar den som anges på produkten. Felaktig spänning kan orsaka permanent skada och ogiltigförklara garantin.

Om säkringen behöver bytas ut, använd endast säkringar av samma typ och klassificering. Användning av felaktiga säkringar kan orsaka brand- eller säkerhetsrisker och upphäver all garantitäckning.

4. Rätt Användning och Miljö

Se till att din Music Tribe-produkt används enligt produktmanualen och inom de rekommenderade driftsförhållandena. Exponering för överdriven fukt, damm, värme eller stötar kan leda till fel och göra garantin ogiltig.

PL Ważna informacja

1. Rejestracja Produktu

Aby zapewnić optymalną obsługę i wsparcie, zalecamy rejestrację produktu Music Tribe zaraz po zakupie na stronie musictribe.com. Rejestracja umożliwia nam szybszą i bardziej efektywną pomoc w przypadku zgłoszenia serwisowego lub roszczenia gwarancyjnego. Gwarantuje również otrzymywanie ważnych aktualizacji produktu, powiadomień o bezpieczeństwie i istotnej dokumentacji.

Podczas rejestracji uzyskasz również dostęp do pełnych warunków naszej Ograniczonej Gwarancji.

Należy pamiętać, że zakres gwarancji i prawa konsumenckie mogą się różnić w zależności od kraju lub jurysdykcji. Sprawdź warunki obowiązujące w Twoim regionie w momencie rejestracji lub poprzez nasz portal wsparcia.

2. Wsparcie Techniczne i Awarie

Jeśli doświadczasz awarii lub potrzebujesz pomocy, a autoryzowany sprzedawca Music Tribe nie jest dostępny w Twoim regionie, zapoznaj się z listą autoryzowanych serwisów w sekcji „Wsparcie" na stronie musictribe.com.

Jeśli Twojego kraju nie ma na liście, zalecamy w pierwszej kolejności skorzystanie z naszych zasobów wsparcia online, które mogą pomóc w rozwiązaniu problemu bez konieczności zwrotu produktu. W przypadku kwestii gwarancyjnych należy złożyć internetowe zgłoszenie gwarancyjne przed odesłaniem produktu. Nieautoryzowane zwroty lub niezgłoszone roszczenia mogą powodować opóźnienia w procesie lub odrzucenie gwarancji.

3. Nieautoryzowane Naprawy i Modyfikacje

Aby zachować gwarancję, nie otwieraj, nie demontuj ani nie próbuj samodzielnie naprawiać produktu. Naprawy lub modyfikacje przeprowadzane przez nieautoryzowane osoby lub serwisy unieważnią gwarancję i mogą wpłynąć na bezpieczeństwo lub wydajność produktu.

Przed podłączeniem urządzenia do źródła zasilania upewnij się, że napięcie wejściowe odpowiada wartości podanej na produkcie. Nieprawidłowe napięcie może spowodować trwałe uszkodzenie i unieważnienie gwarancji.

Jeśli konieczna jest wymiana bezpiecznika, używaj wyłącznie bezpieczników o tym samym typie i parametrach. Użycie nieprawidłowych bezpieczników może powodować zagrożenie pożarowe lub bezpieczeństwa i spowoduje utratę ochrony gwarancyjnej.

4. Prawidłowe Użytkowanie i Środowisko

Upewnij się, że produkt Music Tribe jest używany zgodnie z instrukcją obsługi i w zalecanych warunkach eksploatacji. Narażenie na nadmierną wilgoć, kurz, ciepło lub uderzenia może prowadzić do awarii i unieważnienia gwarancji.

JP その他の重要な情報

1. 製品登録

最適なサービスとサポートを確保するため、購入後すぐに musictribe.com で Music Tribe 製品を登録することをお勧めします。登録することで、サービスリクエストや保証請求の際に迅速かつ効率的なサポートを受けることができます。また、重要な製品アップデート、安全通知、および関連するドキュメントも受け取ることができます。

登録時には、限定保証の全条件にもアクセスできます。

保証の適用範囲や消費者の権利は、国や地域によって異なる場合があります。登録時またはサポートポータルで、お住まいの地域に適用される条件を確認してください。

2. 技術サポートと不具合

製品の不具合が発生したりサポートが必要な場合、お住まいの地域に Music Tribe 認定販売店がない場合は、musictribe.com の「サポート」セクションに記載されている認定サービス提供者のリストをご確認ください。

お住まいの国がリストにない場合、まずはオンラインサポートの利用をお勧めします。これにより、返品せずに問題を解決できる可能性があります。保証に関する問題については、製品を返送する前に必ずオンライン保証請求を提出してください。未承認の返品や未登録の請求は、処理の遅延や保証の拒否につながる可能性があります。

3. 非認可の修理および改造

保証を維持するために、製品を開封、分解、または自分で修理しないでください。非認可の人物やサービスセンターによって行われた修理や改造は、保証を無効にし、製品の安全性や性能に影響を及ぼす可能性があります。

電源に接続する前に、入力電圧が製品に記載されている定格と一致していることを確認してください。不適切な電圧は、製品の損傷や保証の無効化につながる可能性があります。

ヒューズを交換する必要がある場合は、必ず同じ種類と定格のヒューズを使用してください。不適切なヒューズの使用は、火災や安全上のリスクを引き起こし、すべての保証が無効になります。

4. 適切な使用と環境

Music Tribe 製品は、取扱説明書に従い、推奨される動作条件内で使用してください。過度の湿気、ほこり、熱、衝撃への暴露は故障の原因となり、保証が無効になる可能性があります。

CN 其他的重要信息

1. 产品注册

为了确保最佳的服务和支持，我们建议您在购买后立即在 musictribe.com 注册您的 Music Tribe 产品。注册后，我们可以更快、更高效地协助您处理服务请求或保修索赔。此外，您还可以收到重要的产品更新、安全通知和相关文档。

在注册过程中，您还可以访问完整的有限保修条款和条件。

请注意，保修范围和消费者权益可能因国家或地区而有所不同。请在注册时或通过我们的支持门户查询适用于您所在地区的条款。

2. 技术支持与故障处理

如果您的设备发生故障或需要帮助，并且您所在地区没有 Music Tribe 授权经销商，请在 musictribe.com 的“支持”部分查阅授权服务提供商列表。

如果您的国家不在列表中，我们建议您首先使用在线支持资源，这可能有助于在无需退货的情况下解决问题。对于保修相关事宜，请在退回产品之前确保提交在线保修索赔。未经授权的退货或未注册的索赔可能导致处理延误或保修无效。

3. 未授权维修与修改

为了保持保修有效，请勿自行拆卸、分解或维修产品。未经授权的人员或服务中心进行的维修或修改将导致保修失效，并可能影响产品的安全性或性能。

在连接电源之前，请确保输入电压与产品上标注的额定电压匹配。不正确的电压可能会导致永久性损坏并使保修失效。

如果需要更换保险丝，请仅使用相同类型和额定值的保险丝。使用不正确的保险丝可能会导致火灾或安全隐患，并使所有保修无效。

4. 正确使用与环境

请确保您的 Music Tribe 产品按照产品手册使用，并在推荐的操作条件下运行。暴露于过度潮湿、灰尘、高温或冲击可能会导致故障并使保修失效。

FEDERAL COMMUNICATIONS COMMISSION COMPLIANCE INFORMATION

Behringer

WAVE

Responsible Party Name:	**Empower Tribe Innovations US Inc.**
Address:	**901 Grier Dr. Las Vegas, NV, 89119, USA**
Email Address:	**legal@musictribe.com**

WAVE

This equipment has been tested and found to comply with the limits for a Class B 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, there 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, the user is 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 into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This equipment complies with Part 15 of the FCC rules. Operation is subject to the following two conditions:

(1) this device may not cause harmful interference, and
(2) this device must accept any interference received, including interference that may cause undesired operation.

Important information:

Changes or modifications to the equipment not expressly approved by Music Tribe can void the user's authority to use the equipment.

CE

Hereby, Music Tribe declares that this product is in compliance with Directive 2014/35/EU,Directive 2014/30/EU, Directive 2011/65/EU and Amendment 2015/863/EU, Directive 2012/19/EU, Regulation 519/2012 REACH SVHC and Directive 1907/2006/EC.

Full text of EU DoC is available at https://community.musictribe.com/

EU Representative: Empower Tribe Innovations DE GmbH
Address: Otto-Brenner-Strasse 4a, 47877 Willich, Germany

UK Representative: Empower Tribe Innovations UK Ltd.
Address: 5 Brindley Road Old Trafford, Manchester, United Kingdom, M16 9UN



Correct disposal of this product: This symbol indicates that this product must not be disposed of with household waste, according to the WEEE Directive (2012/19/EU) and your national law. This product should be taken to a collection center licensed for the recycling of waste electrical and electronic equipment (EEE). The mishandling of this type of waste could have a possible negative impact on the environment and human health due to potentially hazardous substances that are generally associated with EEE. At the same time, your cooperation in the correct disposal of this product will contribute to the efficient use of natural resources. For more information about where you can take your waste equipment for recycling, please contact your local city office, or your household waste collection service.

1 WAVE User Manual Addendum

BEHRINGER WAVE – Firmware Update v1.5 – Manual Addendum

Important: After updating the firmware, please initialize the WAVE using DTF:8.

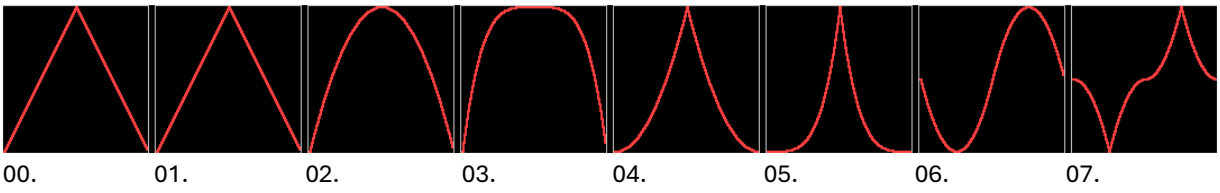
The firmware update includes 26 new premium presets from synth preset specialists *Ultimate Patches* (PROG 74–99 in BANK 0), along with the following new features:

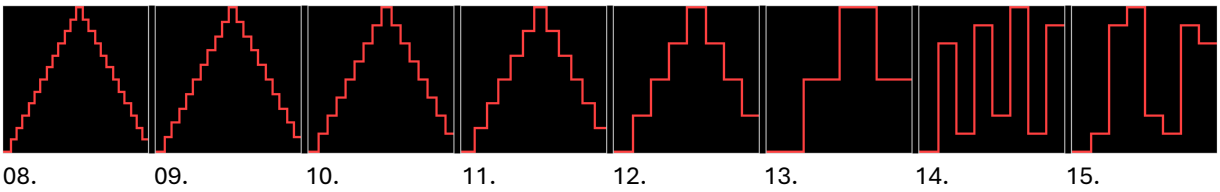
1. *Additional LFO Shapes*

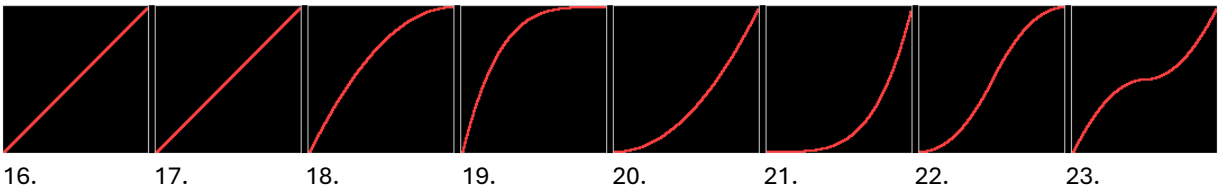
The LFO WAVESHAPE parameter has a range from 0–63. However, the current firmware supports only four LFO shapes:

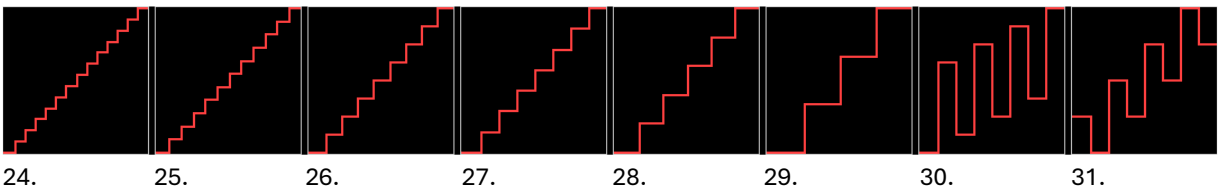
- 0–15 → TRI
- 16–31 → SAW UP
- 32–47 → SAW DOWN
- 48–63 → SQUARE

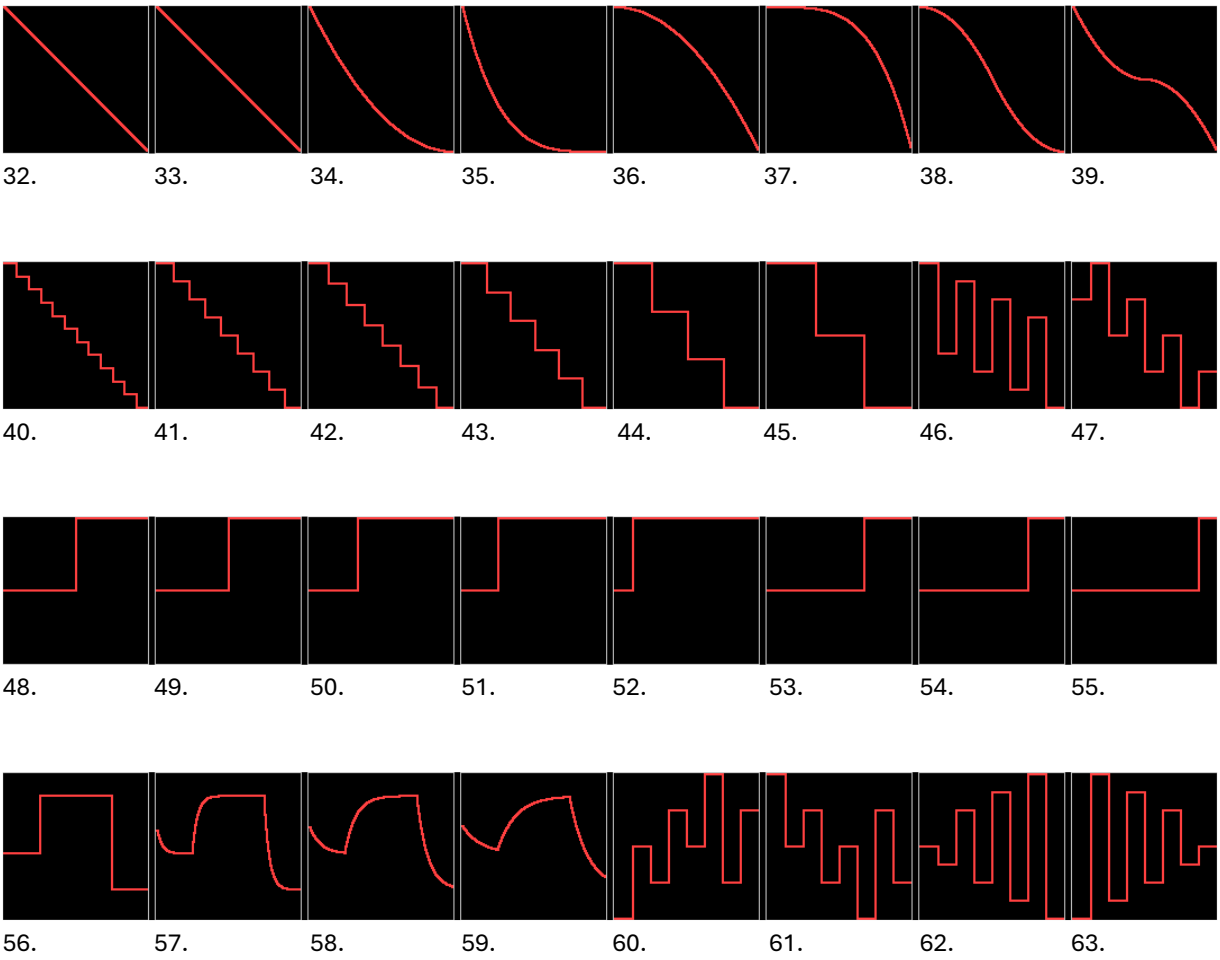
The update adds many more LFO shapes, including random sample-and-hold (S&H) with slewing (56–59).











Existing factory and user presets will remain unaffected, as these use only SHAPE parameter values of 0, 16, 32 and 48, which correspond to the same LFO Shapes as before.

2. New KEYB Mode B-Mono / A-Poly

The ‘KEYB:9’ mode allows playing one voice of the WAVE using the CV/GATE input signals. With this FW update, this mode automatically switches to B-MONO / A-POLY (B: 1 voice, A: 7 voices) when nothing is connected to the GATE input.

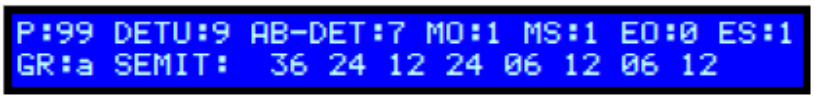
As with KEYB:4–8 modes, the SPLIT parameter determines the keyboard split key.

3 WAVE User Manual Addendum

3. *New A/B Detuning Parameter*

This parameter allows the voices to be detuned against each other in KEYB:1–3 modes (DUAL, QUAD and MONO), enabling a wide range of powerful new sounds including Super Saw.

Updated TUNING Menu



AB-DET → Group A/B Detuning (0–7)

4. *Additional Transient Loop Sizes and adjustable WT Sweep Smoothing*

Currently the DIGITAL menu parameter 'UW' has a range of 0–2. With the firmware update, the range is extended to 0–9, providing additional Transient Loop Sizes and adjustable WT Sweep Smoothing.

TRANSIENT Loop Sizes

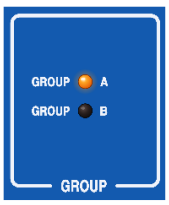
UW	0	1	2	3	4	5	6	7	8	9
Loop Size	128	2048	8192	256	512	1024	3072	4096	5120	6144

For Wave Tables, the UW values 3–9 are identical with 'UW2' except that with raising values, stepping will be increasingly audible during WT sweeping. This allows for Presets using WT stepping as a sound effect.

5. *Selected Group and Octave Settings are now stored in Presets*

When a Program is stored using DTF:9 the currently selected Keyboard Octave and selected Group are stored with the Preset data. When a Preset is loaded, these stored settings are recalled accordingly.

Group Selection



Octave Selection



6. New ENV/OSC Parameters for Presets

Currently the Envelope and Oscillator modes can only be adjusted on a global scale in the USER Menu. Two new Parameters in the DIGITAL Menu now allow changing these settings for an individual preset.

EV	0	1	2
	Global Setting	Linear	Exponential

OC	0	1	2
	Global Setting	PPG Mode	Enhanced

7. New LFO Mode

Currently by default there is only one free-running LFO per Group. The new LF Parameter allows using an individual LFO per voice which is reset in its Phase by every Note-On event. This allows for very interesting new sound possibilities.

LF	0	1
	LFO per Group	LFO per Voice

8. New Velocity Modulation Parameter

This new Parameter allows modulation of the WT Position by the Note-On Velocity values. When activated, the WAVE-OSC knob determines the upper limit of the WT number range. Please note that this Parameter has no effect if a Transient is selected.

VW	0	1	2	3
	Off	Low	Medium	High

9. Additional Pitch Wheel Range Values

Currently the DIGITAL Menu parameter ‘BI’ has a range of 0–5. The FW update will add the values 6–9, allowing more Pitch Wheel Range choices:

BI	**Note Range**
6	One Fifth in Semitone Steps
7	Fourth (5 Semitones)
8	One Semitone
9	50 Cents

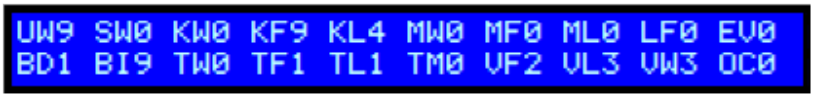
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10. Additional KF Values

The DIGITAL Menu parameter 'KF' now can be set to 8 and 9 for negative VCF frequency keyboard tracking:

KF	Keyboard Tracking Amount
8	-20%
9	-40%

Updated DIGITAL Menu



11. Preset Names are now displayed in the OLED

When in the User Menu PROG or BANK are modified, the loaded Program Name will be displayed in the OLED. The current Program Name is also displayed when the cursor is moved to PROG. A name can be added to presets using the latest Synthtribe app.

OLED Program Name Display



Programs – Bank 0 (Firmware v1.5)

PROG	KEYB	WT /TR	Name	AT
0	Poly	21	Thingie	
1	Poly	74	Space Sweep	
2	Poly	68	Dynamic Tines	
3	A poly, B mono	29	Bass & Juno Sweep	X
4	Poly	24	Dynamic Prophet Brass	X
5	Poly	71	Stratos	
6	A poly, B mono	86	Bass & Voco Trem	
7	Poly	84	Wurli One	
8	Poly	67	Jazz Guitar	
9	Poly	27	Rotary B3	
10	A poly, B mono	29	Bass & PWM Strings	
11	Poly	64	Church Pipes	
12	Poly	69	Dream Vibes	
13	A poly, B mono	68	Fretless & Tines	
14	Poly	2	BellTasia	
15	Poly	66	Tubular	
16	Poly	78	CZ Sawer	
17	Poly	6	FM Brass	X
18	Poly	16	WAVE Waves	X
19	Poly	73	FairVox	
20	Poly	32	PanFlute	X
21	Poly	33	Pizzicato	
22	Poly	34	Steel Guitar	
23	Poly	36	Xylophone	
24	Poly	38	Sail Away	
25	A poly, B mono	76	PWMstringer	
26	Poly	39	Soft Bell EP	
27	Poly	41	Solo Trumpet	X
28	Poly	42	Mute Trumpet	X
29	Poly	43	Duuuh	X
30	A poly, B mono	84	Bass & Wurli	
31	Quad	30	Sync Solo	X
32	Poly	30	Synth Flute	X
33	Poly	31	Alto Sax	X
34	A poly, B mono	19	Retro Split	X
35	Quad A/B	29	Strings'n Solo	X
36	Poly	24	Matrix Strings	
37	Poly	65	Alpha Pad	
38	Poly	37	HarpOon	
39	Poly	22	Fantasia	
40	Poly	30	Synth Pizzi	
41	Poly	0	Super Saw	
42	Poly	14	Organ Chariot	
43	Poly	31	Piano X	
44	Poly	0	Percussion	
45	Poly	17	FanWAVEia	
46	Poly	30	Lyle's Solo	X
47	Poly	70	FM Bass1	
48	Poly	72	PWM Pad	
49	Poly	71	Solina 1	

PROG	KEYB	WT /TR	Name	AT
50	Poly	20	808 Bass	
51	A poly, B mono	6	WAVE SeqSplit	X
52	Poly	24	SoundTrack	X
53	Poly	77	Solead	
54	Poly	82	LA Strings	X
55	A poly, B mono	71	80s Rig	
56	A poly, B CV IN	24	JunPad & CV-Bass	
57	Poly	85	Fendi Rhodos	
58	Poly	86	Ding Ding	
59	Poly	47	Universal	
60	Poly	44	Pipe Brass	X
61	Poly	46	Big Score	
62	Poly	48	Breathy Vox	
63	Poly	45	Hammer Harp	
64	A poly, B mono	30	Synth Trees	
65	Mono	74	Monster Bass	
66	Poly	20	Squared Sponge	X
67	A poly, B mono	29	Juno's Dream	
68	Poly	3	Random VCF	
69	Poly	43	Flutter Wave	X
70	Mono	0	Hyper SAW	X
71	Poly	30	Comet Trem	
72	Poly	2	Dynamic Bell	
73	A poly, B mono	83	AI Reso	
74	Quad	78	1985 REMEMBERS	X
75	Poly	15	DUSK HORIZONS	X
76	Quad	78	ETHER REALMS	X
77	A poly, B mono	86	BOTS PLEA	X
78	Quad	31	CRYPTO SCAN	X
79	Poly	47	ORGANIC VOX	X
80	Poly	66	VINTAGE MAGIC	X
81	Poly	35	FEMME DELICATE	X
82	Quad	14	CLASSIC BRASS	X
83	Poly	30	8-BIT DREAMS	X
84	Poly	33	PHAEDRA'S PAD	X
85	Quad	39	EVOLVER CINEMA	X
86	Poly	78	1987 CLASSIC	X
87	Poly	30	2055 FUTUREPOP	X
88	Poly	46	CINEMA 2040	X
89	Quad	78	1983 CLASSIC	X
90	Poly	20	GLASSOIDAL	X
91	Poly	79	AMOR FUTURO	X
92	Mono	17	1985 SAMPLEVOX	X
93	Poly	1	THE 1974 ORGAN	X
94	Poly	31	4BIT HIT	X
95	Poly	36	BIOLUMINESCE	X
96	Poly	76	THE THREE SUNS	X
97	Quad	15	FUTURACCORDION	X
98	Quad	78	MODE DANCER	X
99	Poly	78	THE PROPHETS	X

MIDI NRPNs (Firmware v1.5)

MSB	LSB	14-bit	Parameter Name	Range	Notes
0	0	00	WAVETB	0–127	Wavetable (32–127 = User WT/Trans)
0	1	01	SPLIT	0–99	Split Point
0	2	02	KEYB	0–9	Keyboard Mode
0	3	03	DTF	0–7	Preset Data recall Mode
0	4	04	TUNE	0–99	Tuning (400..499)
0	5	05	EXP-PEDAL	0–5	Expression Pedal Function
0	6	06	TOUCH	0–3	Channel Aftertouch
0	7	07	BRT	0–99	LCD Brightness
0	8	08	CNT	0–99	LCD Contrast
0	9	09	FIRM	0–2	Global Firmware Mode
0	10	10	OSC	0–1	Global Oscillator Mode
0	11	11	LFO	0–1	LFO Mode
0	12	12	UW	0–9	Upper WT Select
0	13	13	SW	0–6	Sub Osc Mode
0	14	14	KW	0–7	Key -> Wave Mod
0	15	15	KF	0–9	Key -> Filter Mod
0	16	16	KL	0–7	Key -> Loudness Mod
0	17	17	MW	0–9	Mod Wheel -> Wave Mod
0	18	18	MF	0–9	Mod Wheel -> Filter Mod
0	19	19	ML	0–1	Mod Wheel -> Loudness Mod
0	20	20	BD	0–7	Bender Destination
0	21	21	BI	0–9	Bender Interval
0	22	22	TW	0–2	Touch -> Wave Mod
0	23	23	TF	0–2	Touch -> Filter Mod
0	24	24	TL	0–2	Touch -> Loudness Mod
0	25	25	TM	0–1	Touch -> Mod Wheel
0	26	26	VF	0–3	Velocity -> Filter Mod
0	27	27	VL	0–3	Velocity -> Loudness Mod
0	28	28	DETU	0–9	Sub Osc Detuning
0	29	29	MO	0–1	Mod -> Main Osc Pitch
0	30	30	MS	0–1	Mod -> Sub Osc Pitch
0	31	31	EO	0–9	Env3 -> Main Osc Pitch
0	32	32	ES	0–1	Env3 -> Sub Osc Pitch
0	33	33	SEMIT V1	0–63	Voice 1 - Semi Offset
0	34	34	SEMIT V2	0–63	Voice 2 - Semi Offset
0	35	35	SEMIT V3	0–63	Voice 3 - Semi Offset
0	36	36	SEMIT V4	0–63	Voice 4 - Semi Offset
0	37	37	SEMIT V5	0–63	Voice 5 - Semi Offset
0	38	38	SEMIT V6	0–63	Voice 6 - Semi Offset
0	39	39	SEMIT V7	0–63	Voice 7 - Semi Offset
0	40	40	SEMIT V8	0–63	Voice 8 - Semi Offset
0	41	41	STATE	0–3	Arp/Seq - State (Stop,Play,Rec,Overdub)
0	42	42	MOD	0–25	Arp/Seq - Mode
0	43	43	CLK	0–34	Arp/Seq - Clock Selection
0	44	44	GAT	0–99	Arp/Seq - Gate Time
0	45	45	DIV	0–6	Arp/Seq - Sequencer Time
0	46	46	BPM	40–240	Arp/Seq - Speed (MSB/LSB)
0	47	47	LF	0–1	LFO Mode
0	48	48	EV	0–2	Envelope Mode
0	49	49	VW	0–3	Velocity -> WT Position
0	50	50	OC	0–2	Oscillator Mode
0	51	51	AB-DET	0–7	A/B Voice Detuning

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SysEx Preset Data (Firmware v1.5)

Byte	Group	Menu	Parameter Name	Range	Notes
0-15		NAME	PRESET NAME	32–126	16x ASCII Character Bytes
16		PROGRAM	WAVETB	0–127	Wavetable (32–127 = User TR/WT)
17		PROGRAM	SPLIT	0–99	Split Point
18		PROGRAM	KEYB	0–9	Bits 0–3 - Keyboard Mode
		PROGRAM	OCTAVE	0–3	Bits 4–5 - [0: '-1', 1: '0', 2: '+1', 3: '-2']
		PROGRAM	GROUP	0–1	Bit 6 - [0: 'GROUP A', 1: 'GROUP B']
19	A	TUNING	SUB-DETU	0–9	Bits 0–3 - Sub Osc Detuning
	A	TUNING	AB-DETU	0–7	Bits 4–6 - AB Detuning
20	A	TUNING	MO	0–1	Mod -> Main Osc Pitch
21	A	TUNING	MS	0–1	Mod -> Sub Osc Pitch
22	A	TUNING	EO	0–9	Env3 -> Main Osc Pitch
23	A	TUNING	ES	0–1	Env3 -> Sub Osc Pitch
24	A	TUNING	SEMIT V1	0–63	Voice 1 - Semi Offset
25	A	TUNING	SEMIT V2	0–63	Voice 2 - Semi Offset
26	A	TUNING	SEMIT V3	0–63	Voice 3 - Semi Offset
27	A	TUNING	SEMIT V4	0–63	Voice 4 - Semi Offset
28	A	TUNING	SEMIT V5	0–63	Voice 5 - Semi Offset
29	A	TUNING	SEMIT V6	0–63	Voice 6 - Semi Offset
30	A	TUNING	SEMIT V7	0–63	Voice 7 - Semi Offset
31	A	TUNING	SEMIT V8	0–63	Voice 8 - Semi Offset
32	A	ANALOG	DELAY	0–127	LFO Delay
33	A	ANALOG	WAVESHAPE	0–127	LFO Shape
34	A	ANALOG	RATE	0–127	LFO Rate
35	A	ANALOG	A1	0–127	Env 1 - Attack
36	A	ANALOG	D1	0–127	Env 1 - Decay
37	A	ANALOG	S1	0–127	Env 1 - Sustain
38	A	ANALOG	R1	0–127	Env 1 - Release
39	A	ANALOG	VCF-CUTOFF	0–127	Filter Frequency
40	A	ANALOG	VCF-EMPHASIS	0–127	Filter Resonance
41	A	ANALOG	WAVES-OSC	0–127	Main Osc Wave Tab Position
42	A	ANALOG	WAVES-SUB	0–127	Sub Osc Wave Tab Position
43	A	ANALOG	ATTACK 3	0–127	Env 3 - Attack
44	A	ANALOG	DECAY 3	0–127	Env 3 - Decay
45	A	ANALOG	ENV 3 ATT	0–127	Env 3 - Amount
46	A	ANALOG	A2	0–127	Env 2 - Attack
47	A	ANALOG	D2	0–127	Env 2 - Decay
48	A	ANALOG	S2	0–127	Env 2 - Sustain
49	A	ANALOG	R2	0–127	Env 2 - Release
50	A	ANALOG	MOD WHL	0–127	Mod Wheel Position
51	A	ANALOG	ENV 1 -> VCF	0–127	Env1 -> VCF Frequency Mod
52	A	ANALOG	ENV 2 -> LOUDNESS	0–127	Preset Volume
53	A	ANALOG	ENV 1 -> WAVES	0–127	Env1 -> Wave Pos Mod
54	A	DIGITAL	UW	0–9	Upper WT Select
55	A	DIGITAL	SW	0–6	Sub Osc Mode
56	A	DIGITAL	KW	0–7	Key -> Wave Mod
57	A	DIGITAL	KF	0–9	Key -> Filter Mod
58	A	DIGITAL	KL	0–7	Key -> Loudness Mod
59	A	DIGITAL	MW	0–9	Mod Wheel -> Wave Mod
60	A	DIGITAL	MF	0–9	Bits 0–3 - Mod Wheel -> Filter Mod
	A	DIGITAL	LF	0–1	Bits 4–6 - LFO Mode -> Global/Voice
61	A	DIGITAL	ML	0–1	Bits 0–3 - Mod Wheel -> Loudn. Mod
	A	DIGITAL	EV	0–2	Bits 4–6 - ENV Mode -> Glob/LIN/EXP

Byte	Group	Menu	Parameter Name	Range	Notes
62	A	DIGITAL	BD	0–7	Bender Destination
63	A	DIGITAL	BI	0–9	Bender Interval
64	A	DIGITAL	TW	0–2	Touch -> Wave Mod
65	A	DIGITAL	TF	0–2	Touch -> Filter Mod
66	A	DIGITAL	TL	0–2	Touch -> Loudness Mod
67	A	DIGITAL	TM	0–1	Touch -> Mod Wheel
68	A	DIGITAL	VF	0–3	Bits 0–3 - Velocity -> Filter Mod
	A	DIGITAL	VW	0–3	Bits 4–6 - Velocity -> WT Position
69	A	DIGITAL	VL	0–3	Bits 0–3 - Velocity -> Loudness Mod
	A	DIGITAL	OSC	0–2	Bits 4–6 - OSC Mode -> Glob/PPG/Enhan
70	B	TUNING	SUB-DETU	0–9	Bits 0–3 - Sub Osc Detuning
	B	TUNING	AB-DETU	0–7	Bits 4–6 - AB Detuning
71	B	TUNING	MO	0–1	Mod -> Main Osc Pitch
72	B	TUNING	MS	0–1	Mod -> Sub Osc Pitch
73	B	TUNING	EO	0–9	Env3 -> Main Osc Pitch
74	B	TUNING	ES	0–1	Env3 -> Sub Osc Pitch
75	B	TUNING	SEMIT V1	0–63	Voice 1 - Semi Offset
76	B	TUNING	SEMIT V2	0–63	Voice 2 - Semi Offset
77	B	TUNING	SEMIT V3	0–63	Voice 3 - Semi Offset
78	B	TUNING	SEMIT V4	0–63	Voice 4 - Semi Offset
79	B	TUNING	SEMIT V5	0–63	Voice 5 - Semi Offset
80	B	TUNING	SEMIT V6	0–63	Voice 6 - Semi Offset
81	B	TUNING	SEMIT V7	0–63	Voice 7 - Semi Offset
82	B	TUNING	SEMIT V8	0–63	Voice 8 - Semi Offset
83	B	ANALOG	DELAY	0–127	LFO Delay
84	B	ANALOG	WAVESHAPE	0–127	LFO Shape
85	B	ANALOG	RATE	0–127	LFO Rate
86	B	ANALOG	A1	0–127	Env 1 - Attack
87	B	ANALOG	D1	0–127	Env 1 - Decay
88	B	ANALOG	S1	0–127	Env 1 - Sustain
89	B	ANALOG	R1	0–127	Env 1 - Release
90	B	ANALOG	VCF-CUTOFF	0–127	Filter Frequency
91	B	ANALOG	VCF-EMPHASIS	0–127	Filter Resonance
92	B	ANALOG	WAVES-OSC	0–127	Main Osc Wave Tab Position
93	B	ANALOG	WAVES-SUB	0–127	Sub Osc Wave Tab Position
94	B	ANALOG	ATTACK 3	0–127	Env 3 - Attack
95	B	ANALOG	DECAY 3	0–127	Env 3 - Decay
96	B	ANALOG	ENV 3 ATT	0–127	Env 3 - Amount
97	B	ANALOG	A2	0–127	Env 2 - Attack
98	B	ANALOG	D2	0–127	Env 2 - Decay
99	B	ANALOG	S2	0–127	Env 2 - Sustain
100	B	ANALOG	R2	0–127	Env 2 - Release
101	B	ANALOG	MOD WHL	0–127	Mod Wheel Position
102	B	ANALOG	ENV 1 -> VCF	0–127	Env1 -> VCF Frequency Mod
103	B	ANALOG	ENV 2 -> LOUDNESS	0–127	Preset Volume
104	B	ANALOG	ENV 1 -> WAVES	0–127	Env1 -> Wave Pos Mod
105	B	DIGITAL	UW	0–9	Upper WT Select
106	B	DIGITAL	SW	0–6	Sub Osc Mode
107	B	DIGITAL	KW	0–7	Key -> Wave Mod
108	B	DIGITAL	KF	0–9	Key -> Filter Mod
109	B	DIGITAL	KL	0–7	Key -> Loudness Mod
110	B	DIGITAL	MW	0–9	Mod Wheel -> Wave Mod

Byte	Group	Menu	Parameter Name	Range	Notes
111	B	DIGITAL	MF	0–9	Bits 0–3 - Mod Wheel -> Filter Mod
	B	DIGITAL	LF	0–1	Bits 4–6 - LFO Mode -> Global/Voice
112	B	DIGITAL	ML	0–1	Bits 0–3 - Mod Wheel -> Loudn. Mod
	B	DIGITAL	EV	0–2	Bits 4–6 - ENV Mode -> Glob/LIN/EXP
113	B	DIGITAL	BD	0–7	Bender Destination
114	B	DIGITAL	BI	0–9	Bender Interval
115	B	DIGITAL	TW	0–2	Touch -> Wave Mod
116	B	DIGITAL	TF	0–2	Touch -> Filter Mod
117	B	DIGITAL	TL	0–2	Touch -> Loudness Mod
118	B	DIGITAL	TM	0–1	Touch -> Mod Wheel
119	B	DIGITAL	VF	0–3	Bits 0–3 - Velocity -> Filter Mod
	B	DIGITAL	VW	0–3	Bits 4–6 - Velocity -> WT Position
120	B	DIGITAL	VL	0–3	Bits 0–3 - Velocity -> Loudness Mod
	B	DIGITAL	OSC	0–2	Bits 4–6 - OSC Mode -> Glob/PPG/Enhan

We Hear You

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