

LWL2CXBALBI

USER MANUAL

Stereo Audio over Fiber - bi-directional



Import, Manufacturing and Distribution by

vuefec.tv UG (haftungsbeschränkt)

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Die hierin enthaltenen technischen Informationen über die Merkmale und Spezifikationen des Geräts können ohne weitere Ankündigung geändert werden.

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Also, the technical information contained herein regarding the device features and specifications is subject to change without further notice.

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LWL2CXBALBI Stereo Audio over Fiber bi-directional

The **DIVAR** LWL2CXBALBI fiber extender kit sends 2-channel, bi-directional, balanced line level audio over a single fiber.

The system consists of a transmitter and receiver that support 16-bit digitally encoded broadcast audio for use on multi mode or single mode optical fiber. This extender transmits a broadcast quality audio signal up to 500 m on multi mode fiber and up to 20 km on single mode fiber.

In the bi-directional version, the devices labeled as transmitters and receivers have the same function. Each sends audio in the direction of the other device and receives audio from the other device.

Includes

- 1 Transmitter
- 1 Receiver
- 2 Power Supplies, 5VDC/2A

Features

- 2-channel, bidirectional audio on XLR 3pin connectors
- No adjustments; pure digital processing and transmission
- Line level, balanced audio operation
- Indicator LEDs monitor audio signals and power
- Standalone chassis with surface mounting bracket
- Multi mode fiber transmission up to 1600 feet without attenuation
- Single mode fiber transmission up to 12.5 miles without attenuation
- Complete Transmitter and Receiver System

Specifications

Optical:

Wavelength	1310 nm & 1470 nm~1610 nm
Output Power	-14~-8 dBm / -5~0 dBm
Optic fiber	50/125u multi mode, 62.5/125u multi mode, 9/125u single mode
Rx sensitivity	-30 dBm
Optical connector	FC or ST or SC (optional on request)
Distance	0~2 km (MM) / 0~20 km (SM)

Balanced Audio

Number of Channels	2 Input + 2 Output
Input Connector	XLR-3F (female)
Output Connector	XLR-3M (male)
Input / Output Impedance	10 kOhm, electronically balanced
Input capacitance LINE inputs	10 pF
Max input/output voltage	3.0 Vp-p
Frequency Response	10 Hz~24 kHz @ ± 3 dB
Sample Rates From	48 kHz
SNR	> 80 dB

Electrical & Mechanical

Input Power Requirements:	DC 5 V @ 2 A
Power Adapter:	AC 90 V~240 V
Power Consumption:	< 5 W
Dimensions:	168 mm $\times$ 154 mm $\times$ 45 mm
Weight:	650 g Transmitter & Receiver each

Environmental

Operating Temperature:	-20°C ~ +75°C
Storage Temperature:	-40°C ~ +85°C
Relative Humidity:	0% ~ 95% (non-condensing)
MTBF:	> 100,000 hours

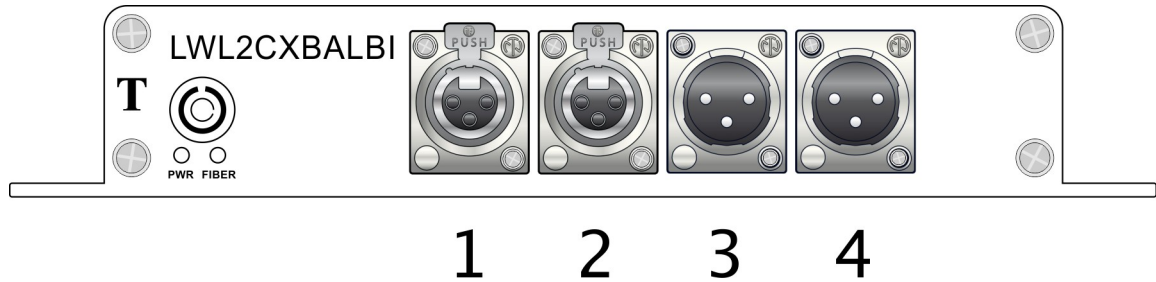
NOT FOR USE WITH IFB SYSTEMS WHERE AUDIO IS MODULATED WITH VOLTAGE

NOT FOR USE WITH PHANTOM POWERED DEVICES

Interfacing the LWL2CXBALBI

Transmitter

The transmitter unit, which is labeled with a “T”, has the following I/O ports and connections:



Fiber I/O

Status Indicator LEDs

1. Audio Input 1 to Receiver Output 1
2. Audio Input 2 to Receiver Output 2
3. Audio Output 3 from Receiver Input 1
4. Audio Output 4 from Receiver Input 2

Fiber I/O

The fiber optic connection varies depending on the variant selected.

Status Indicator LEDs

The PWR LED lights up green when the operating voltage is present.

The FIBER LED lights up green when the fiber optic line is connected and the signal is synchronized.

Audio I/Os

Audio is connected using XLR 3pin connectors.

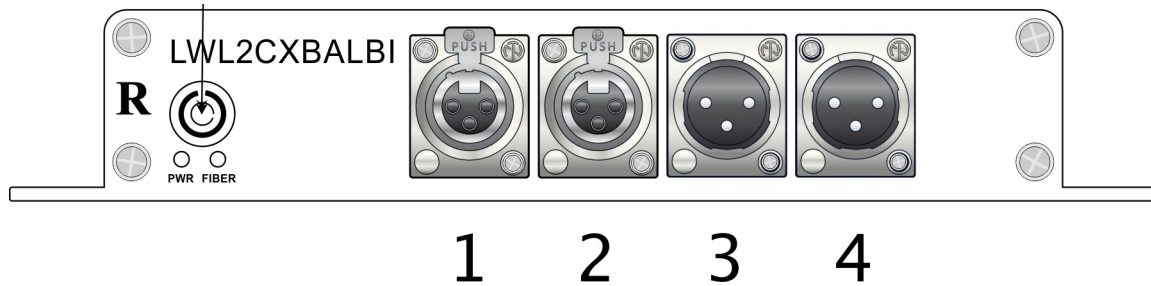
Power I/O

Power is supplied via a 5.5x2.5 mm DC plug on the back of the device.

If necessary, a protective earth can be connected to the Ground screw next to the DC socket.

Receiver

The receiver unit, which is labeled with a “R”, has the following I/O ports and connections:



Fiber I/O

Status Indicator LEDs

1. Audio Input 1 to Transmitter Output 1
2. Audio Input 2 to Transmitter Output 2
3. Audio Output 3 from Transmitter Input 1
4. Audio Output 4 from Transmitter Input 2

Fiber I/O

The fiber optic connection varies depending on the variant selected.

Status Indicator LEDs

The PWR LED lights up green when the operating voltage is present.

The FIBER LED lights up green when the fiber optic line is connected and the signal is synchronized.

Audio I/Os

Audio is connected using XLR 3pin connectors.

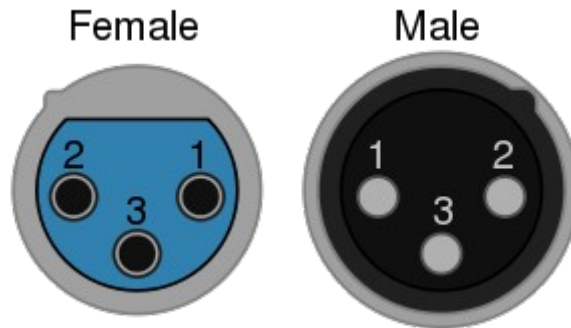
Power I/O

Power is supplied via a 5.5x2.5 mm DC plug on the back of the device.

If necessary, a protective earth can be connected to the Ground screw next to the DC socket.

XLR Connector

The industry standard XLR connector is used for the connection of the Audio signal to the fiber optic transmission system.



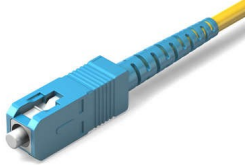
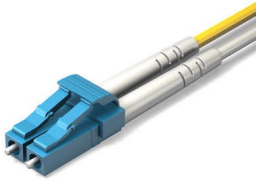
See pin-out below.

XLR Connector Pin	Female	Male
Pin 1	Audio Ground	Audio Ground
Pin 2	Balanced Audio +	Balanced Audio +
Pin 3	Balanced Audio -	Balanced Audio -

Fiber Connector

All **DIVAR** Fiber Optic devices are available with different fiber connectors.

The user can choose between the following connections when ordering.

Type		Description	Order number
SC		SC is a snap-in connector with a 2.5 mm ferrule that is widely used for its excellent performance. Its shell is rectangular, adopted by the pin type and the structure of the coupling sleeve size. The end face of the pin is used more PC or APC model grinding method, fastening way is to use the plug pin bolt type, do not need to rotate. SC connector latches with a simple push-pull motion. SC connectors provide for accurate alignment via their ceramic ferrules. Typical matched SC connectors are rated for 1000 mating cycles. SC connector features with low price, involve loss small ripple, high compressive strength and high density installation.	LWLxxxxx-SC
ST		ST is probably still the most popular connector for multi mode networks, widely used in the optical distribution frame (ODF), like most buildings and campuses. It has a bayonet mount and a long cylindrical 2.5 mm ceramic (usually) or polymer ferrule to hold the fiber. Most ferrules are ceramic, but some are metal or plastic. ST connectors are constructed with a metal housing and are nickel-plated, can be inserted into and removed from a fiber-optic cable both quickly and easily. They have ceramic ferrules and are rated for 500 mating cycles.	LWLxxxxx-ST
LC		LC type connector is a famous BELL developed by the institute of research, using convenient operation modular jack (RJ) latch mechanism is made. The pin and the size of the sleeve is adopted by the general SC, FC, half size is 1.25 mm. It can improve the density of optical fiber connector in the optical fiber distribution frame. Otherwise, it's a standard ceramic ferrule connector, easily terminated with any adhesive. LC connector features with good performance and is highly favored for single mode.	LWLxxxxx-LC
FC		FC connector was originally developed by NTT, Japan. FC is short for FERRULE CONNECTOR. It also uses a 2.5 mm ferrule, its external strengthening way is to use metal sleeve, fastening way as the turnbuckle. FC connectors offer extremely precise positioning of the fiber-optic cable with respect to the transmitter's optical source emitter and the receiver's optical detector. FC connectors feature a position locatable notch and a threaded receptacle. FC connectors are constructed with a metal housing and are nickel-plated. They have ceramic ferrules and are rated for 500 mating cycles. This kind of connector is simple in structure, convenient operation.	LWLxxxxx-FC

Power Supply

The Tx and Rx units are powered by a 5 V DC 2 Amp universal voltage AC adapter [100 V - 240 V AC 50/60 Hz input range], similar to the power supply shown below.



Note:

The LWL2CXBALBI features environmentally conscious packaging material to protect the LWL22CBAL system during transportation and can be used for temporary storage when better forms of storage are not available.

SET UP INSTRUCTIONS

1. Secure the units in a safe location, where they will not be bumped or dropped or fall and where there is room around the unit so nothing will interfere with the fiber optic cabling causing it to bend in a tight radius or bend sharply in any way as this can severely affect the signal transfer.
2. Carefully connect your source(s) to the transmitters input(s) and the receiver units output(s) to your receiving devices input(s) using the female XLR inputs on the transmitter and male XLR output connectors on the receiver unit,
3. Please note that all audio on the transmitter (Tx) and receiver (Rx) must be line level.
4. CLEAN* the ST fiber optical cable contacts that will be used for connecting the Tx and Rx units and insert the fiber into the ST connections and secure like you would secure a bayonet BNC: while pressing lightly in on the connector twist it in a clockwise direction about 1/8 to 1/4 of a turn and then release, the connector should stay inserted and have backwards spring pressure holding the bayonet in place.
5. Connect the included power supplies to the transmitter & receiver units, and plug them both into an AC power source (100v-240v AC 50/60Hz).

**ALL FIBER OPTICAL CABLE CONTACTS [THE ENDS ARE CALLED CONTACTS: THE PART THAT IS INSERTED AND MAKES CONTACT TO ENABLE THE TRANSMISSION OF THE LIGHTWAVES THROUGH THE FIBER] REQUIRE CLEANING EVERYTIME BEFORE INSERTING INTO A DEVICES OUTPUTS OR INPUTS. FAILURE TO CLEAN THE CONTACTS CAN NOT ONLY DAMAGE THE UNITS OPTICS OVER TIME BUT CAN RENDER THE CABLE AND THE DEVICE USELESS PERMANENTLY. FURTHERMORE CLEANING WITH CLEANING METHODS OTHER THAN CLEANING KITS SPECIFICALLY FOR FIBER OPTICS ARE UNACCEPTBLE AND MAY EVEN ADD CONTAMINANTS THAT CANNOT BE SEEN BY THE NAKED EYE TO THE FIBER AGAIN RENDERING THE SYSTEM USELESS, PLEASE CLEAN THE FIBER OPTICAL CONTACTS EVERYTIME PRIOR TO INSERTING THE CONNECTOR INTO THE JACK ON THE UNITS*

!!! FIBER OPTIC CLEANING KITS ARE AVAILABLE FROM YOUR DEALER/SUPPLIER !!!



SICHERHEITSHINWEISE

- Um Brand- und Stromschlaggefahr zu vermeiden, setzen Sie dieses Gerät keiner Umgebung mit hoher Luftfeuchtigkeit und/oder Staub aus. Verwenden Sie das Gerät nicht in einem ungeschützten Außenbereich oder in einem Bereich, der als übermäßig feucht oder nass eingestuft ist.
- Die Temperatur für die Installation oder den Betrieb sollte zwischen 0°C - 60°C liegen. Vermeiden Sie direkte Sonneneinstrahlung oder extreme Temperaturschwankungen über einen kurzen Zeitraum.
- Demontieren Sie das Gerät nicht. Stellen Sie das Gerät nicht auf eine instabile Unterlage. Lassen Sie das Gerät nicht fallen und vermeiden Sie starke Stöße.
- Belüftung: Etwaige Öffnungen im Gehäuse dienen der Belüftung, um einen zuverlässigen Betrieb des Geräts zu gewährleisten und es vor Überhitzung zu schützen. Diese Öffnungen dürfen nicht blockiert oder abgedeckt werden. Dieses Gerät sollte nicht in einem anderen Gehäuse installiert werden, wenn keine ausreichende Belüftung gewährleistet ist.
- Reinigung: Ziehen Sie vor der Reinigung des Geräts den Netzstecker. Verwenden Sie keine Flüssigreiniger oder Aerosole, sondern nur ein feuchtes Tuch.
- **Überlasten Sie Anschlußbuchsen und -kabel nicht, da die Gefahr von Brand oder Stromschlag besteht.**
- Das Öffnen des Gehäuses ist gefährlich. Führen Sie niemals Gegenstände jeglicher Art, einschließlich Flüssigkeiten, durch Öffnungen in das Gerät ein, da sie dabei spannungsführende Teile berühren oder kurzschließen können, was zu einem Brand oder Stromschlag führen kann.
- Wartung: Versuchen Sie nicht, das Gerät selbst zu öffnen oder zu warten, da Sie sich beim Öffnen oder Entfernen von Abdeckungen gefährlichen Spannungen oder anderen Gefahren aussetzen können. Im Inneren des Geräts befinden sich keine vom Benutzer zu wartenden Teile. Wenn das Gerät gewartet werden muss, wenden Sie sich bitte an Ihren autorisierten Händler oder eine autorisierte Reparaturwerkstatt.



SAFETY PRECAUTIONS

- To prevent fire or shock hazard, do not expose this equipment to an environment of high humidity and/or dust. Do not use in an unprotected outdoor installation or any area classified as overly damp or wet.
- The temperature for installation should be kept between 0°C - 60°C. Avoid direct sunlight exposure or extreme changes of temperature over a short period of time.
- Do not disassemble the unit or put it on an unstable base.
- Do not drop it and avoid heavy impact.
- Ventilation: Any openings in the enclosure are provided for ventilation and to ensure reliable operation of the unit and to protect it from overheating. These openings, if any, must not be blocked or covered. This unit should not be placed in a built-in installation unless proper ventilation is provided.
- Cleaning: Unplug the unit from the mains outlet before cleaning. Do not use liquid cleaners or aerosol cleaners, only use a damp cloth.
- **Do not overload outlets and extension cords as this may result in a risk of fire or electric shock.**
- Enclosure Entry of any kind is dangerous. Never push objects of any kind, including liquids, into this unit through openings as they may touch dangerous voltage points or short-out parts that could result in a fire or electric shock.
- Service: Do not attempt to open or service this unit yourself as opening or removing covers may expose you to dangerous voltage of other hazards. There are no user-serviceable parts inside the unit. If the unit requires service please contact your authorized dealer, or an authorized repair service company.

Conformity Declaration

to EMV guideline (89/336/EC) and to low-voltage guideline (73/23/EC chapter 10)

The importer/manufacturer:

vuotec.tv UG, Hasselbusch 124a, 24558 Henstedt-Ulzburg

declares hereby, that the product:

Product name: Audio Over Fiber Extender

Model number: LWL2CXBAL | LWL2CBAL | LWL2CXBALBI | LWL2CXBALBI

Year of construction: 2016

corresponds to the regulations of the guidelines described above:

The following harmonized norms were used:

- **EN 55011** ISM Equipment, Group 1, Class A
- **EN 55022** Conducted Emissions, Class B
- **EN 50081-2** Generic standard interference transmission, industry area
- **EN 50082-2** Generic standard interference immunity, industry area
- **prEN55103-1** EMV product family norm for Audio-, Video and audio-visual facilities as well as for studio light control facilities for the professional usage, -Part 1: Limiting values and measurement procedure for disturbing emissions
- **prEN55103-2** EMV product family norm for Audio-, Video and audio-visual facilities as well as for studio light control facilities for the professional usage, -Part 2: Requirements on the interference immunity
- **EN 61000-3-2** Power Factor Harmonic Correction
- **EN 61000-3-3** Flicker & Voltage Fluctuation Limits
- **EN 61000-4-2** Electrostatic Discharge Immunity
- **EN 61000-4-3** Radiated Electromagnetic Fields
- **EN 61000-4-4** Fast Transients-Burst Immunity
- **EN 61000-4-5** Input Surge Immunity
- **EM 61000-4-6** Conducted RFI
- **EN 61000-4-11** Voltage Dips

The following national or international norms (or parts/clauses from this) and specifications were used:

- **DIN EN 6099** Verbindungsmaterial für Niederspannungsstromkreise für Haushalt und ähnliche Zwecke; Teil 1: Allgemeine Anforderungen
- **IEC 127-6** Geräteschutzsicherungen

Henstedt-Ulzburg, 29.06.2016

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Eingeschränkte Garantie

Das erworbene DIVAR Produkt wurde von Hand gebaut, inspiziert und getestet, um eine hohe Qualität der Verarbeitung und Zuverlässigkeit zu gewährleisten.

Der HERSTELLER garantiert, daß das Produkt für 24 Monate ab Kaufdatum beim VERKÄUFER oder einem autorisierten Händler frei von Material- und Verarbeitungsfehlern ist.

Sollte dieses Produkt innerhalb der 24 Monate Garantiezeit nicht einwandfrei funktionieren; wird der HERSTELLER das Gerät nach eigenem Ermessen reparieren oder ersetzen, vorausgesetzt, dass das Gerät nicht durch einen Unfall, eine Katastrophe, Missbrauch oder nicht autorisierte Änderungen, einschließlich statischer Entladung und Überspannung, beschädigt wurde. Diese Garantie wird vom Hersteller nur für seine KÄUFER bei Direktgeschäften angeboten. Diese Garantie erlischt, wenn das Garantiesiegel am Gehäuse gebrochen ist.

Geräte, die unter anderen als den von der Garantie abgedeckten Bedingungen ausfallen, werden zu den zum Zeitpunkt der Reparatur gültigen Preisen für Teile und Arbeit repariert. Für solche Reparaturen gilt eine Garantie von 90 Tagen ab dem Tag der Rücksendung an den KÄUFER. Wenn das Gerät per Post geliefert wird, erklärt sich der Kunde bereit, das Gerät zu versichern oder das Risiko des Verlusts oder der Beschädigung während des Transports zu übernehmen. Unter keinen Umständen wird ein Gerät ohne eine zuvor erteilte RMA-Nummer angenommen.

Die Eingeschränkte Garantie tritt an die Stelle aller anderen ausdrücklichen oder stillschweigenden Garantien, einschließlich und ohne Einschränkung aller anderen stillschweigenden Garantien oder der Eignung oder Marktgängigkeit für einen bestimmten Zweck, die alle ausdrücklich abgelehnt werden.

Für die Inanspruchnahme der Garantie kann ein Verkaufsnachweis erforderlich sein. Kunden außerhalb der BRD sind für die Versandkosten zum und vom VERKÄUFER verantwortlich. Für Kabel gilt nur eine 30-tägige Garantie, und die Kabel müssen frei von Markierungen und Kratzern und sauber gewickelt sein.

Limited Warranty

Your DIVAR product was hand built, inspected and tested to ensure a high quality of workmanship and reliability.

The MANUFACTURER warrants the product to be free from defects in the material and workmanship for 24 month from the date of purchase from the SELLER or an authorized dealer.

Should this product fail to be in good working order within 24 month warranty period;

The MANUFACTURER, at its option, repair or replace the unit, provided that the unit has not been subjected to accident, disaster, abuse or any unauthorized modifications including static discharge and power surge. This warranty is offered by the manufacturer for its BUYER with direct transaction only. This warranty is void if the warranty seal on the housing is broken.

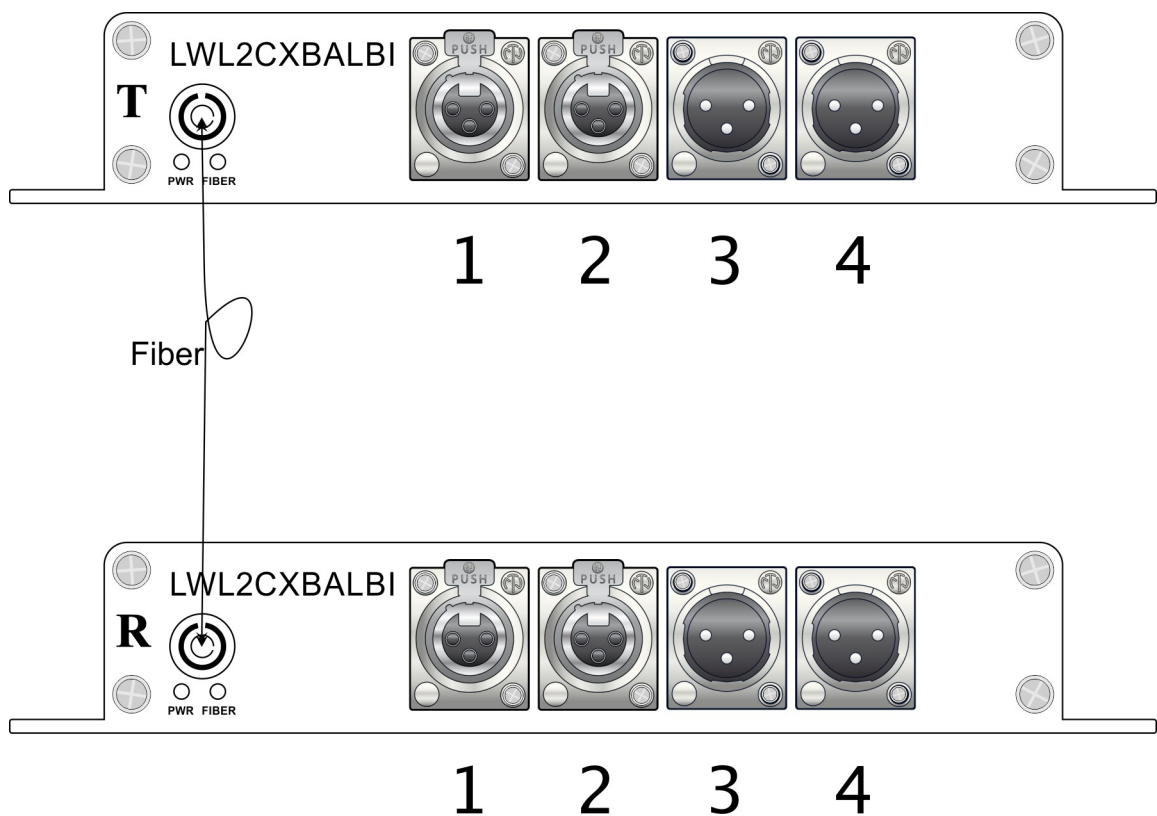
Any unit that fails under conditions other than those covered will be repaired at the current price of parts and labor in effect at the time of repair. Such repairs are warranted for 90 days from the day of reshipment to the BUYER. If the unit is delivered by mail, customers agree to insure the unit or assume the risk of loss or damage in transit. Under no circumstances will a unit be accepted without a return authorization number.

The warranty is in lieu of all other warranties expressed or implied, including without limitations, any other implied warranty or fitness or merchantability for any particular purpose, all of which are expressly disclaimed.

Proof of sale may be required in order to claim warranty. Customers outside the Federal German Republic are responsible for shipping charges to and from the SELLER. Cables are limited to a 30 day warranty and cable must be free from any markings, scratches, and neatly coiled.

GENERAL

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.



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