Capsule microphonique MK 2H

omni

COLETTE modulaire

– omnidirectionnelle
– une légère accentuation des aigus compense les pertes dans les aigus à distance moyenne de prise de son
– utilisation conseillée : stéréophonie AB et Decca Tree

Utilisée en salle et à distance de prise de son moyenne (c'est-à-dire autour du périmètre critique), cette capsule présente une courbe de réponse en fréquence constante et étendue, associée à un faible niveau de bruit. Elle convient donc aux applications les plus exigeantes.

Entrée acoustique d'une capsule classique

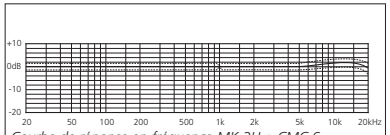
MK 2H

Par rapport aux autres capteurs de pression, l'entrée acoustique est habillée d'une bague plaquée or qui assure une accentuation des graves purement acoustique au-dessus de 6 kHz (2 dB à 10 kHz). Celle-ci réduit les pertes dans les aigus du son diffus du local et confère une sonorité naturelle.

La MK 2 est spécialement bien adaptée à la prise de son naturelle des instruments et des orchestres en salle. Le choix entre la MK 2H et la toute autant prisée MK 2S est surtout une question de goût. Si la MK 2H est plus volontiers qualifiée de "ronde et équilibrée", la sonorité de la MK 2S est un peu brillante.

La MK 2H est particulièrement appréciée pour la stéréophonie AB ou Decca-Tree, souvent réalisée avec la capsule équipée d'une sphère enfichable KA 40 qui accroit la directivité et accentue légèrement les fréquences moyennes.

Longueur : 22 mm
Diamètre : 20 mm
Poids : 17 g



Courbe de réponse en fréquence MK 2H + CMC 6,

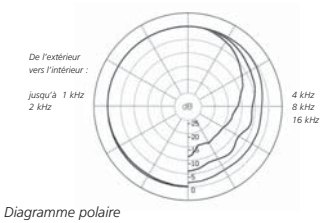


Diagramme polaire

Bande passante :	20 Hz – 20 kHz
Sensibilité :	15 mV/Pa
Niveau de bruit de fond acoustique équivalent :	
pondéré A*:	11 dB-A
CCIR**:	23 dB
Niveau de signal /bruit (pondéré A*):	83 dB-A
Pression acoustique maximum :	130 dB (0,5% DHT)

*IEC 61672-1, **IEC 60268-1

La courbe de réponse en fréquence de cette capsule avec les amplificateurs CMC 6 xt et CMD 2 xt est présentée à la page 135.

Capsule microphonique MK 4

cardioïde

COLETTE modulaire

– cardioïde pour musique et voix
– pour toutes applications
– directivité faiblement dépendante de la fréquence
– utilisation conseillée : chant, parole, instruments, micro d'appoint pour stéréo XY, ORTF et MS

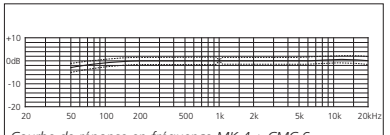
La MK 4 est la capsule que nous vendons le plus. Rien d'étonnant à cela, puisqu'elle associe une sonorité de la plus haute qualité à une atténuation optimale du son arrière. Ceci s'explique par leur réponse en fréquence uniforme et par leur directivité constante à toutes les fréquences. Ce type de micro présente ainsi une réponse en fréquence constante aussi dans le champ diffus, avec une légère remontée vers les 10 kHz. L'image sonore conserve ainsi sa couleur en incidence latérale comme dans l'axe, ainsi que dans le champ diffus (réverberation) en salle.

L'insensibilité au son arrière de la MK 4 a été optimisée. Comme pour un cardioïde classique, l'atténuation du son incident à 90° est égale à 6 dB, et celle du son arrière est comprise entre 20 et 30 dB. Le son incident diffus est restitué avec 4,8 dB de moins que le son incident direct, valeur qui correspond à l'indice de directivité (voir bas de la p. 21). Plus cet indice est élevé, moins le micro prend de "l'ambiance" et moins il est sensible au Larsen (rétroaction acoustique).

A équilibre de réverbération égal, la MK 4 peut être placée environ 1,7 fois plus loin de la source qu'un capteur de pression de même sensibilité.

La MK 4 convient à la prise de voix comme à la prise musicale. Elle est souvent utilisée aussi bien comme micro d'appoint que comme micro de studio ou dans les montages stéréo. Le micro stéréo ORTF (MSTC 64 Ug, STCg) est équipé de cette capsule. Utilisée dans une paire XY ou comme micro central dans un montage MS, elle donne de remarquables résultats.

Longueur : 22 mm
Diamètre : 20 mm
Poids : 17 g



Courbe de réponse en fréquence MK 4 + CMC 6

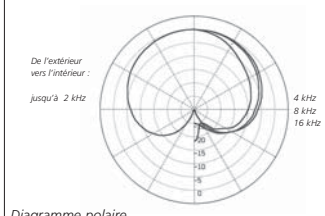


Diagramme polaire

Bande passante :	40 Hz – 20 kHz
Sensibilité :	13 mV/Pa
Niveau de bruit de fond acoustique équivalent :	
pondéré A*:	15 dB-A
CCIR**:	24 dB
Niveau de signal /bruit (pondéré A*):	79 dB-A
Pression acoustique maximum :	132 dB (0,5% DHT)

*IEC 61672-1, **IEC 60268-1

La courbe de réponse en fréquence de cette capsule avec les amplificateurs CMC 6 xt et CMD 2 xt est présentée à la page 135.

COLETTE modulaire

MK__
Capsule microphonique

CMC 6Ug
Amplificateur microphonique

Désignation du type d'un microphone :

CMC 64 Ug

6	alimentation	12 V ± 1 V et 48 V ± 4 V fantôme
4	type de capsule	MK 4
U	connecteur	XLR-3M
g	surface	gris anti-reflet

CMC 5Ug
pour alimentation en fantôme 48 V

*Amplificateur microphonique CMC_*

– réponse en fréquence constante
– distorsion et interférences très faibles
– à sortie symétrique très basse impédance
– utilisable avec des câbles très longs

La capsule d'un microphone à condensateur (le seul type que SCHOEPS fabrique) ne peut pas être excitée directement par le câble du micro ou par une entrée. Il faut intercaler un amplificateur microphonique. Une des 20 capsules MK_ du SYSTÈME MODULAIRE doit donc être vissée sur un amplificateur (p.ex. CMC_) pour constituer un microphone complet.

(Un peu de technique : l'amplificateur fournit à la capsule le courant qui lui permet d'émettre un signal. Comme ce signal est très faible (à haute impédance), il a besoin d'une amplification (de courant). Afin d'éviter toute perturbation du signal entre le micro et l'entrée, celui-ci doit être transporté à basse impédance et symétriquement. Le CMC possède un étage de sortie classe A symétrique, sans transformateur ni condensateur. Cette configuration se traduit par une impédance de sortie très faible, une grande résistance aux interférences, une faible distorsion et un faible poids).

Alimentation des microphones à condensateur

Comme l'amplificateur microphonique est un composant électrique fonctionnant sous tension, il a besoin d'une alimentation dite "fantôme". Il en existe deux types : 1. le type 48 V, le plus répandu, 2. le type 12 V, plus rare.

Nous proposons deux amplificateurs microphoniques : le nouveau CMC 6 pour alimentation fantôme normalisée en 12 V et 48 V, et l'ancien modèle CMC 5 qui ne peut être alimenté qu'en fantôme 48 V.

Le circuit du CMC 6 reconnaît automatiquement le type d'alimentation (12 V ou 48 V) et s'y adapte. Ses caractéristiques ont été pour l'essentiel peu modifiées : seul le courant est adapté à la tension d'alimentation. L'intensité de courant est plus élevée en 12 V qu'en 48 V. Néanmoins la puissance absorbée avec l'alimentation en 12 V est plus faible. C'est un avantage si on travaille avec une batterie.

Quel amplificateur choisir ?

En termes d'alimentation, le CMC 6 est le plus flexible. Il est aussi moins sensible aux parasites à haute fréquence qui voyagent surtout par le câble du microphone. Il existe aussi en version "xt" (sur demande, voir "Versions spéciales"). Lorsque seule une alimentation fantôme 48 V est utilisée et que la résistance élevée aux parasites du CMC 6 ne s'impose pas, le modèle CMC 5 est disponible.

Quant à la qualité audio, la seule différence entre le CMC 5 et le CMC 6 se situe au niveau de la restitution des graves : comme protection contre les infrasons hors du spectre audible, la bande passante de la version standard du CMC 6 a une coupure de basses à 20 Hz

XY

ORTF

MS

Blumlein

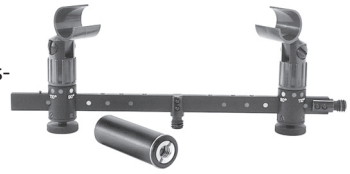
Barrette stéréo universelle UMS 20

– pour deux microphones du S YSTÈME MODULAIRE Colette (p.ex. CMC, Ø 20 mm)

En liaison avec deux microphones adéquats, ce dis positif permet de configurer presque tous les procédés de prise de son stéréophonique connus (XY, MS, ORTF, Blumlein). Le mécanisme comporte quatre positions crantées et peut aussi se verrouiller en toute position intermédiaire.

Le montage s'effectue à l'aide d'un embout taraudé 5/8" -27 NS de diamètre 20 mm extérieur (adaptateur pour pas de vis 3/8" et 1/2" fourni). Le dispositif peut être combiné avec la pince articulée SG 20 pour montage sur pied ou avec la suspension élastique A 20 S, toutes deux non comprises), qui facili tent le montage et permettent de régler les inclinaisons.

Finition de surface : noir mat, pinces plastiques : gris



4060-BM, 4060 Omnidirectional, Hi-Sens

Tiny mic with neutral sound character and great detail; large dynamic range, low noise and high sensitivity, fits numerous transmitters.

Originally designed for use with wireless systems in theater, television and close-miked instrument applications, the highly unobtrusive 4060 capsule is visually smaller than a pencil eraser.

Because of their small size, these tiny condensers exhibit an exceedingly accurate omnidirectional pattern and therefore do not need to be aimed directly at the sound source to achieve quality pickup.

The 4060 is available in four colors: black, brown, beige and white.

For a wireless microphone, choose between our adapter system or a hardwired connector.

Applications

Excellent speech and vocal mics, DPA miniatures are de facto theatre standards. Musicians and engineers use them as live or studio microphones for close-miking acoustic string instruments like violin, guitar, bass, viola and harp. On television, DPA's small condenser microphones are popular as lavalier lapel and tie clip mics.

Accessories

Two different protection grids are supplied and by changing these grids you can acoustically modify the microphone's response according to their placement on the body - the chest, the head etc. Additionally, a wide range of accessories is available, such as windscreens in different colors, clips and holders, extension cables, and power supplies.

Wireless microphones

A wide range of connection adapters makes it possible to use DPA miniature microphones with all professional UHF, VHF or digital wireless system available plus 48 V Phantom.

DPA has specific adapters for AKG, Audio Ltd., Audio-Technica, Beyerdynamic, Electro-Voice, Lectrosonics, Micron, Mipro, Pastega, Telex ProStar, Ramsa, Samson, Sennheiser, Shure, Sony, Toa, Vega and other systems. Each adapter for your cordless microphone is guaranteed to perfectly mate to your system of choice.

Specifications

Offering great detail and resolution, the 4060s have a neutral sonic character and are very natural sounding. The 4060 has a very low noise floor, impressive sensitivity and can handle high SPLs. For full technical specs, please click the Specifications tab above.

Related microphones

The DPA 4061, 4062 and 4063 are acoustically identical to the 4060 but have been adjusted to handle higher SPL and to match some of the more sensitive transmitters on the market. The 4060 is also included in stereo and instrument microphone kit solutions.

For more information please visit:
www.dpamicrophones.com

4060-BM, 4060 Omnidirectional, Hi-Sens

Directional characteristics:
Omnidirectional

Principle of operation:
Pressure

Cartridge type:
Pre-polarized condenser element with vertical diaphragm

Frequency range, ± 2 dB:
Soft boost grid: 20 Hz – 20 kHz, 3 dB soft boost at 8 – 20 kHz. High boost grid: 20 Hz – 20 kHz, 10 dB boost at 12 kHz.

Sensitivity, nominal, ±3 dB at 1 kHz:
20 mV/Pa; -34 dB re. 1 V/Pa

Equivalent noise level A-weighted:
Typ. 23 dB(A) re. 20 µPa (max. 26 dB(A))

Equiv. noise level ITU-R BS.468-4:
Typ. 35 dB (max. 38 dB)

S/N ratio, re. 1 kHz at 1 Pa (94 dB SPL):
71 dB(A)

Total harmonic distortion (THD):
< 1 % THD up to 123 dB SPL peak; < 1 % THD up to 120 dB SPL RMS sine

Dynamic range:
Typ. 100 dB

Max. SPL, peak before clipping:
134 dB

Output impedance:
30 – 40 ohm

Cable drive capability:
Up to 300 m (984 ft)

Power supply:
For wireless For wireless systems: Min. 5 V – max. 50 V through DPA adapter. With DAD6001-BC/DAD6024/DAD4099: 48 V phantom power ±4 V for full performance.

Connector:
MicroDot

Color:
Black, beige, brown or white

Microphone weight:
7.5 g (0.26 oz) incl. cable and MicroDot connector

Microphone diameter:
5.4 mm (0.21 in)

Microphone length:
12.7 mm (0.5 in)

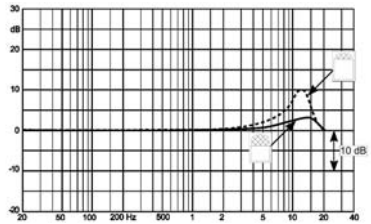
Cable length:
1.8 m (5.9 ft)

Polarity:
Positively increasing sound pressure produces positive going voltage on MicroDot pin

Diagrams

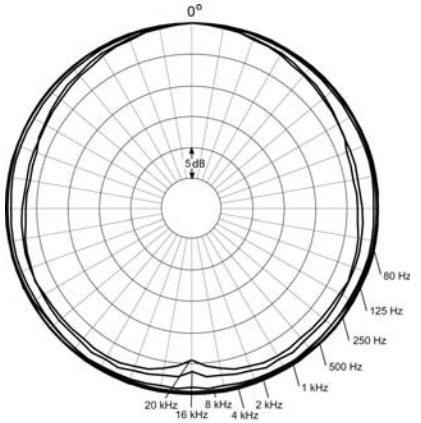
4060-BM, 4060 Omnidirectional, Hi-Sens

On-axis frequency response of Miniature Microphones. Dotted line is with high boost grid and solid line with soft boost grid.



On-axis frequency response of Miniature Microphones. Dotted line is with high boost grid and solid line with soft boost grid.

Directional Characteristics of DPA 4060 (normalized)



Directional Characteristics of DPA 4060 (normalized)

4080-BM, 4080 Miniature Cardioid Microphone, Lavalier

Combining high audio quality and low visibility, the DPA 4080 lavalier is well suited for broadcast, conference, and other live performances.

- excellent speech reproduction
- discreet, compact design
- fits both left and right buttoned shirts
- delivered with both black and white pop filter

Combining high audio quality and low visibility, the DPA 4080 is well suited for broadcast, conference, and other live performances in the studio or in the field.

It is acoustically pre-equalized, offering a 4 dB presence boost, which makes the voice more distinguishable and improves speech intelligibility. Professionals will appreciate the light weight and the excellent speech reproduction.

DPA 4080 is delivered with a pre-mounted black pop filter in a holder with an integrated shock mount, fixed on a clip. An additional white pop filter is enclosed. Because of the flexible and practical mounting solution, the microphone can easily be turned in all directions and fits both left and right buttoned shirts.

All parts of the microphone are manufactured in highly resistant materials and designed to perform under stress.

This mic is also available with connector.

For more information please visit:
www.dpamicrophones.com

Directional characteristics:
Cardioid

Principle of operation:
Pressure gradient

Cartridge type:
Pre-polarized condenser element with vertical diaphragm

Frequency range, ± 2 dB:
250 Hz – 17 kHz with typ. 4 dB soft boost at 4 – 6 kHz (-5 dB at 100 Hz)

Sensitivity, nominal, ±3 dB at 1 kHz:
20 mV/Pa; -34 dB re. 1 V/Pa

Equivalent noise level A-weighted:
Typ. 23 dB(A) re. 20 µPa (max. 26 dB(A))

S/N ratio, re. 1 kHz at 1 Pa (94 dB SPL):
Typ. 71 dB(A)

Total harmonic distortion (THD):
< 1 % up to 123 dB SPL peak, < 1 % up to 120 dB SPL RMS sine

Dynamic range:
Typ. 100 dB

Max. SPL, peak before clipping:
134 dB

Output impedance:
30 – 40 ohm

Power supply:
For wireless systems: Min. 5 V – max. 50 V through DPA adapter. With DAD6001-BC/DAD6024/DAD4099: 48 V phantom power ±4 V for full performance.

Connector:
MicroDot

Color:
Black

Microphone weight:
15 g (0.5 oz) incl. cable and MicroDot connector

Microphone diameter:
10 mm (0.4 in)

Capsule diameter:
5.4 mm (0.2 in)

Microphone length:
30 mm (1.2 in)

Cable length:
1.2 m (4 ft)

Cable color:
Black

Cable diameter:
1.6 mm (0.06 in)

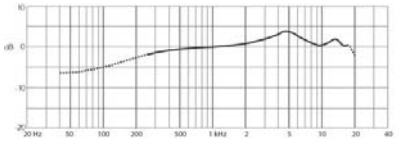
Cable drive capability:
Up to 300 m (984 ft)

Polarity:
Positively increasing sound pressure produces positive going voltage on MicroDot pin

Diagrams

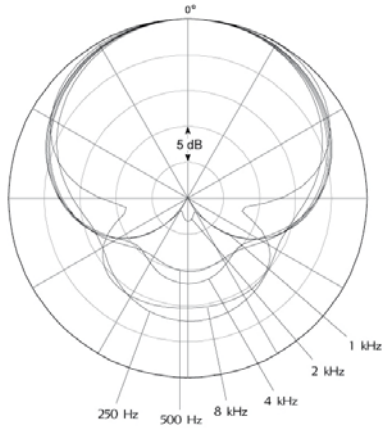
4080-BM, 4080 Miniature Cardioid Microphone, Lavalier

On-axis response of DPA 4080 measured at 25 cm (9.8 in).



On-axis response of DPA 4080 measured at 25 cm (9.8 in).

Directional characteristics of DPA 4080 (normalized).



Directional characteristics of DPA 4080 (normalized).

EK 2000 Adaptive Diversity Camera Receiver

FEATURES

- 20 fixed frequency banks with up to 64 compatible presets in up to 75 MHz switching bandwidth and 6 user banks
- Sturdy all-metal housing
- Adaptive diversity technology for high reliability
- Transmitters can be configured in the receiver menu and can be synchronized via the infrared interface
- Wide range of accessories included in delivery
- Enhanced AF frequency response (25....18000 Hz)

It is nice when you can concentrate fully on the picture because you know the sound is reliable. This camera receiver allows you to do just that. Equipped with adaptive diversity, the camera receiver ensures reliable reception. Five frequency ranges with up to 75 MHz switching bandwidth also provide optimum flexibility for components of the 2000 series. The transmitter settings can be synchronized quickly from EK 2000 using infrared technology.

ARCHITECT'S SPECIFICATIONS

Squelch setting possible in 2 dB steps (Off, 5 ... 25 dBµV) up to 64 compatible presets in up to 75 MHz switching bandwidth. Adaptive diversity (line cable = 2. antenna) Transmitters can be configured in the receiver menu and can be synchronized via the infrared interface balanced audio output. Line output level adjustable, 42 dB in 6 dB steps. Full compatibility to all Sennheiser 2000 series and G3 transmitters. Reduced compatibility to ew G2 and G1 transmitters. Sennheiser HDX Compander system pilot-tone squelch switchable Auto-lock feature to prevent settings from being changed accidentally. Enhanced AF frequency response (25....18000 Hz) Headphone output for control

TECHNICAL DATA

RF frequency range	516 – 865 MHz
Carrier frequencies	max. 3000
Presets	max. 64
Switching bandwidth	max. 75 MHz, tuneable in 25 kHz steps
Nominal / Peak deviation	±24 kHz / ±48 kHz
Squelch threshold	Off, 5 – 25 dBµV: Can be set in 2 dB steps
Intermodulation spacing	≥ 75 dB
Sensitivity (with HDX, peak deviation)	< 1.6 µV for 52 dBArms S/N
Adjacent channel rejection	typ. ≥ 80 dB
Blocking	≥ 80 dB
Compander	HDX
Frequency response	25 – 18000 Hz Signal-to-noise ratio
(1 mVRF, peak deviation)	LineΩ≥ 120 dBArms Phones: approx. 90 dBArms
THD	< 0,9 %
Audio output	3,5 mm Jack
AF output voltage	+17 dBu
(at peak deviation, 1 kHz AF)	(mono, balanced)
Adjustment range of line output level	42 dB, adjustable in steps of 6 dB
Headphone connector:	3,5 mm : Jack
Headphone output power (2.4 V, 5% THD and nominal deviation)	Phones: 2 x 12 mW at 32 Ω
Operating temperature	–10 °C – +55 °C
Power supply	2 AA size batteries, 1.5 V or BA 2015 rechargeable pack

Continued on page 2

EK 2000 Adaptive Diversity Camera Receiver

TECHNICAL DATA

Nominal voltage	2.4 V
Power consumption:	
• at nominal voltage	typ. 180 mA (30 mW)
• with switched-off receiver	≤ 25 µA
Operating time (line operation)	typ. 9 hrs
Dimensions	approx. 82 x 64 x 24 mm
Weight (incl. batteries)	approx. 200 g
Delivery includes:	1 EK 2000 diversity receiver 2 AA 1.5 V batteries 1 CA2 camera attachment kit 1 CL 500 line connecting cable 1 CL 1 line connecting cable 1 instruction manual 1 supplementary frequency sheet

SK 2000 Bodypack Transmitter

FEATURES

- 20 fixed frequency banks with up to 64 compatible presets in up to 75 MHz switching bandwidth and 6 user banks
- Switchable RF output power: 10, 30, 50 and 100 mW (XP only) to further increase distance range and multi-channel capability
- External charging contacts for recharging BA 2015 in the transmitter
- Input sensitivity range of 60 dB can be adjusted in 3 dB steps
- Transmitters can be configured in the receiver menu and can be synchronized via the infrared interface
- Enhanced AF frequency response especially for bass guitar (25....18000 Hz)

This lightweight yet extremely rugged bodypack transmitter is a delight for both the musician and the audience. With an AF frequency response of 18 to 20,000 Hz, it transmits even the sound of a bass guitar with rich fundamentals. Three RF output powers (four inclusive the US version) provide longer transmission ranges or more channels per frequency range. The rechargeable batteries of the SK 2000 (optional) can be charged right in the unit using the external charging contacts.

ARCHITECT'S SPECIFICATIONS

The device shall be a portable compact bodypack transmitter for use with a companion receiver as part of a high reliability wireless radio frequency transmission system. The portable transmitter shall operate within a RF frequency range of 516 – 865 MHz in 20 fixed frequency banks or 6 user banks with a maximum of 64 presets with a switching bandwidth of maximum 75 MHz tunable in 25 kHz steps; carrier frequencies shall be maximum 3000. Nominal/peak deviation shall be ±24 kHz/±48 kHz. Frequency stability shall be ≤ ±15 ppm. RF output power shall be selectable at 10 mW (Low), 30 mW (Standard), 50mW (High) and 100 mW (Maximum, XP version only). A compander feature shall be included and shall be Sennheiser HDX system with pilot-tone squelch (switchable). Audio frequency response shall be 80 – 18,000 Hz (microphone) and 25 – 18,000 Hz (line).

Continued on page 2

TECHNICAL DATA

RF frequency range	516 – 865 MHz
Carrier frequencies	max. 3000
Presets	max. 64
Switching bandwidth	max. 75 MHz, tuneable in 25 kHz steps
Nominal / Peak deviation	±24 kHz / ±48 kHz
Frequency stability	≤ ±15 ppm
RF output power	typ. 10 mW (Low) typ. 30 mW (Standard) typ. 50 mW (High) XP-Version: typ. 100 mW (Maximum)
Compander	HDX
AF frequency response	microphone: 80 – 18,000 Hz line: 25 – 18,000 Hz
Signal-to-noise ratio	> 120 dB(A)
THD, total harmonic distortion	< 0,9 %
Max. input voltage	3 V_{rms}
Input impedance	microphone: 40 kΩ, unbalanced line: 1 MΩ
Input sensitivity range	60 dB, adjustable in 3-dB steps
Operating temperature	–10 °C – +55 °C
Power supply	2 AA size batteries, 1.5 V or BA 2015 recchargeable pack
Nominal voltage	2.4 V

Continued on page 2

SK 2000 Bodypack Transmitter

ARCHITECT'S SPECIFICATIONS

Signal-to-noise ratio shall be >120 dB(A); total harmonic distortion shall be < 0.9%. Maximum input voltage shall be 3V_{rms}. Input impedance shall be 40 kΩ (microphone, unbalanced) and 1 MΩ (line); input sensitivity range shall be 60dB adjustable in 3 dB steps. Menu-based software adjustments shall be made using a backlit LCD user display; transmitters shall be configured in the companion receiver menu and synchronized with the receiver via an integrated infrared interface, or shall be capable of adjustment for settings directly within the transmitter menu. The transmitter shall include an integrated guitar tuner and guitar cable emulation. Non-XP versions of the transmitter shall be capable of upgrade to XP using a PC-based software tool (XP Upgrade Tool). The transmitter shall be fully compatible with all Sennheiser 2000 series and G3 receivers; partial compatibility shall be provided for Sennheiser ew G2 and G1 receivers. Power shall be supplied to the portable receiver by 2 "AA" size batteries (1.5 Vdc) or by one optional Sennheiser BA2015 rechargeable battery pack; charging contacts shall be provided on the exterior of the transmitter case to allow charging (using external charging units) of the BA2015 while inserted in the transmitter. Power consumption shall be typical 180 mA (30 mW) at nominal voltage of 2.4V; ≤25µA when transmitter is switched off. Operating time shall be typical 8 hours. The transmitter case shall be fabricated from metal; case dimensions shall be approximately 3.23" x 2.52" x 0.94" (82 x 64 x 24 mm). Weight including battery shall be approximately 5.64 oz (160 grams). Operating conditions shall be ambient temperature +14°F to +131°F (-10°C to +55°C). The portable compact bodypack transmitter shall be Sennheiser model SK 2000.

TECHNICAL DATA

Power consumption

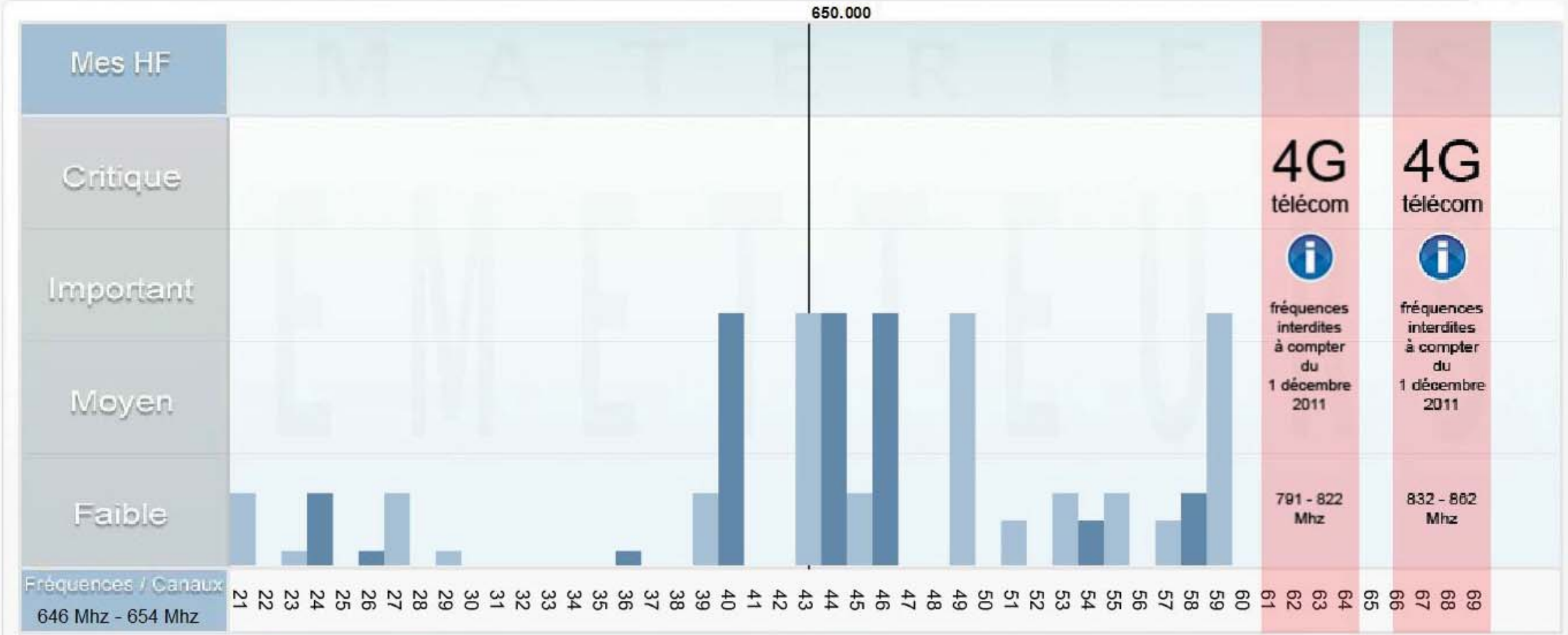
• at nominal voltage	typ. 180 mA (30 mW)
• with switched-off transmitter	≤ 25 µA
Operating time	typ. 8 hrs
Dimensions	approx. 82 mm x 64 mm x 24 mm
Weight (incl. batteries)	approx. 160 g

DELIVERY INCLUDES

1 SK 2000 bodypack transmitter
2 AA 1.5 V batteries
1 instruction manual
1 supplementary frequency sheet
1 supplementary RF power sheet

Listes des émetteurs

Ville : BOURGOIN JALLIEU	**CodePostal :** 38300	**Longitude :** 5.279	**Latitude :** 45.591



Détail émetteur

Station	: LYON MONT PILAT	Canal	: 43
Chaine	: P1	Type	: TNT
Pays	: France	Puissance	: 130 KW

SENNHEISER

Publ.: 16.01.2004

Audiology 3
Accu pack

BA 2015

Cat. No. 09950

Description

The BA 2015 rechargeable battery pack powers bodypack transmitters and portable receivers of the evolution wireless G2 Series and the 2015 FM system. It contains two rechargeable NiMH cells and is inserted into the battery compartment instead of two standard AA cells. The battery pack features an integrated sensor which indicates the battery status, monitors temperature during recharging and avoids the charging of non-rechargeable batteries.

Features

Long operating times (comparable to those of non-rechargeable batteries)
High-quality NiMH cells
Accurate battery status display
Recharging via convenient charging unit
Sensor on the battery pack avoids accidental recharging of non-rechargeable batteries

Technical data

Voltage	2x 1,2 Volt
Capacity	1500 mAh

Delivery includes

1 BA 2015

Features

Inputs
- 4 microphone/line inputs with XLR type balanced connectors
- +48 V power for each microphone input
- Digital cascade input with phono connector
- Microphone/line gain-level control
- Level control knobs with stereo-link facility
- Selectable sampling rate (48 kHz or 96 kHz) for A/D converters

Outputs
- 2 balanced outputs on XLR-type balanced connectors
- Digital AES/EBU output (stereo) on XLR-type balanced connector
- Coaxial output connector for mix-bus output (for cascade) or S/PDIF digital output (selectable)
- Stereo tape output on unbalanced 3.5 mm TRS jack
- Switchable output mode: stereo or monaural
- Selectable output-level control for L/R master outputs and camera send
- Selectable sampling rate (48 kHz or 96 kHz) for D/A converters

Panning
- Variable pan controls

Low Cut Filters
- Adjustable (50 to 200 Hz) cut-off frequencies for 2 user settings (A/B)
- Quick parameter-recall switch with OFF/A/B positions

Limiters/Compressors
- Digital limiters on both inputs and outputs
- Digital compressors on outputs
- Precise parameter control on threshold and ratio value, attack and release time
- Link function (ON/OFF switchable)
- LED indicators for output limiter/compressor operation

Link/M-S operation
- Links input levels, LCFs, and PAN controls for channels 1/2 and 3/4
- Links output levels and limiter/compressor settings for master left/right outputs
- Decodes M-S microphone inputs, and links the input levels of channels 1/2 and 3/4
- Phase reverse on channels 2 and 4 (M-S decode)

LCD Panel
- Various level-meter displays: VU, PPM1 (BBC-type), PPM2 (DIN-type), PPM3 (NORDIC-type), PPM4 (IEC-type1), dBFS
- Displays setup menus and allows various parameter settings
- Three quick-recall memory settings for immediate mixer setup
- Ten user-scene memory settings (each including level meter, LCF, limiter/compressor, and link status)
- Six scale sheets supplied for different level-meter calibrations
- Back light
- Heated LCD for low-temperature conditions

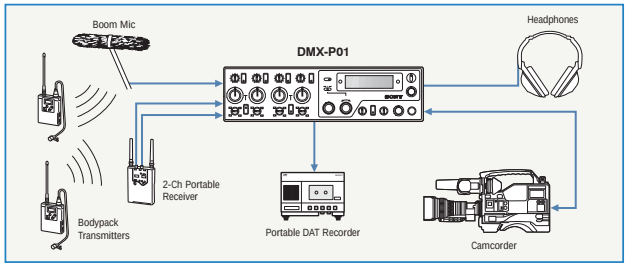
Monitoring
- 2 outputs: 1/4-inch phone jack and 3.5-mm mini jack
- Six monitoring modes: left output, right output, stereo output, left/right-mixed monaural, M/S decode and camera return
- Level-control knob

Camera-Audio Send/Return-Level Control
- Stereo return from a camcorder via 12-pin Tajimi balanced connector
- Precise level control on LED with auto-evaluation function for return level
- Monitoring capability with headphones

Oscillator/Talkback (selectable)
- Oscillator: 1-kHz pilot-tone signal into all outputs
- Talkback: slate into all outputs
- Momentary and alternative modes for both oscillator and talkback

Power
- External DC 10 to 15 V input with 4-pin XLR connector
- External DC 12 V input with jack connector
- DC 12 V output on 4-pin Hirose connector
- 8 internal AA-size (LR6) alkaline batteries for approx. 5 hours of continuous operation

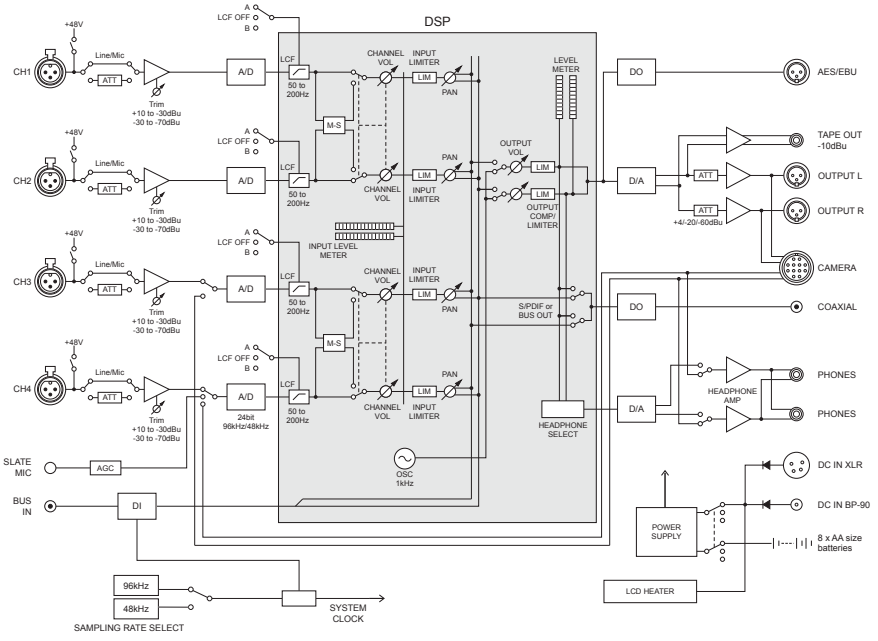
System Example



Specifications

Inputs	
Analog inputs	4 ch, XLR-3-31 (x 4), electrically balanced, microphone power; +48 V (on/off) Mic level; -70 to -30 dBu (max. 0 dBu), 2.2 kΩ or more Line level; -30 to +10 dBu (max. +24 dBu), 10 kΩ or more Phase reverse on channels 2 and 4
Cascade input (digital)	2 busses (L/R), S/PDIF (IEC 60958 coaxial), phono, 75 Ω
Outputs	
Master outputs (analog)	2 ch (L/R), -60/-10/+4 dBu (max. +24 dBu), XLR-3-32 (x 2), balanced, 600 Ω load or more
Digital outputs	2 ch (L/R), AES/EBU, XLR-3-32 (x 1), electrically balanced, 110 Ω load or more
Cascade output (or S/PDIF output)	2 ch (L/R), S/PDIF (IEC 60958 coaxial), phono, unbalanced, 75 Ω load
Tape outputs (analog)	2 ch (L/R), -10 dBu (max. +10 dBu), 3.5 mm dia. TRS jack, unbalanced, 10 kΩ load or more
Camera send/return	2 ch (L/R), 12-pin Tajimi, balanced, Send level; -60/-10/+4 dBu (max. +24 dBu), 600 Ω load or more Return level; 0 dBu (max. +20 dBu), 10 kΩ or more
A/D converter	24 bits
D/A converter	24 bits
Sampling frequency	48 kHz or 96 kHz
Signal processing	32 bits
Low cut filter	50 to 200 Hz (in 10 Hz steps), 12 dB/octave
Input/output limiter	Threshold; 0 to +20 dB
Output compressor	Threshold; -20 to +10 dB, ratio; 2:1 to 10:1, attack time; 0.5 to 100.0 ms, release time; 0.1 to 2.0 s
Frequency response	20 Hz to 40 kHz +0.5/-3.0 dB (at 96 kHz sampling frequency) 20 Hz to 20 kHz +0.5/1.0 dB (at 48 kHz sampling frequency)
Total Harmonic Distortion	Less than 0.05%
Equivalent input noise	-126 dBu (IHF-A)
Crosstalk	Less than -90 dB (1kHz)
Level meter calibration	VU, BBC-type DIN-type, NORDIC-type, IEC-type1, dBSF (selectable)
Monitoring	1/4-inch TRS jack (x 1) and 3.5-mm dia. TRS jack (x 1) with level control
Operating Voltage	
Internal	DC 12 V (eight AA-size alkaline batteries)
External	DC 12 V via DC jack or DC 10 to 15 V via an XLR 4-pin connector
Battery life at 25 ºC	5 hours or more with Sony AA-size alkaline batteries
Power supply (to wireless microphone)	DC 12 V via 4-pin Hirose connector
Operating temperature	+23 to +104 ºF (-5 to +40 ºC)
Storage temperature	-22 to +158 ºF (-30 to +70 ºC)
Dimensions (W x H x D)	10 1/2 x 2 3/4 x 8 1/8 inches (266 x 68 x 206 mm)
Weight	Approx. 4 lb 13 oz (2.2 kg)

Block Diagram



SONY

Sony Electronics Inc.
1 Sony Drive
Park Ridge, NJ 07656
www.sony.com/proaudio

Introduction to iLive

iLive is a state of the art system of components providing a uniquely flexible solution dedicated to live sound mixing and associated applications. It separates the mix engine from the control surface putting the audio and the DSP where it is needed near the stage, and offering a host of control and audio networking possibilities. Refer to the Allen & Heath web site to find out more about the iLive system.

The **MixRack** is the heart of the system. It is the mixer brain complete with audio sockets, DSP to process the audio, and control and audio networking ports. The MixRack is typically connected to one of the many iLive Surfaces available, but can also be controlled at the same time as or even without a Surface using a laptop or iPad, or preconfigured to run with PL Series remote controllers. Walking the stage with the freedom of wireless control opens up a whole new world of mixing…

- Distributed system – Separate MixRack (DSP) and Surface (controller)
- Network, wireless laptop, iPad and iPhone control
- Editor software for online or offline PC/Mac control
- MixPad, OneMix and Tweak apps
- System can be run without a Surface using laptop and iPad only
- Choice of 6 MixRacks (DSP only, modular, 16, 32, 48 or 64 mics)
- Versions available with AES digital out, or update an existing rack with option cards
- Mix and match any combination of MixRack and Surface
- Digital snake for local audio at the Surface – ACE™ single CAT5 up to 120m
- Port B audio network option for digital mic splitting and system linking
- ACE™, Dante, ES, MADI, ADAT, Aviom™, Waves option cards available
- 64x32 RackExtra DSP engine with 8 stereo FX processors
- 32 buses can be configured as mono/stereo groups, auxes, mains, matrix
- Main mix types – none, M, LR, LCR, LCRplus, LRSub, LCRSub and more
- Unique Sub main mix mode for instant access to separate sub bass level
- Monitor mix capability with engineer's Wedge and IEM monitors
- 64 channels configurable as mono or stereo
- Two MixRacks can be linked in Dual-Rack mode to provide 128 input channels
- Up to 72 sources to the mix including FX returns (136 in Dual-Rack mode)
- 3 Dynamics, PEQ, HPF and Delay on all 64 inputs
- 2 Dynamics, PEQ, 1/3 octave GEQ and Delay on all 32 mixes
- 8 Stereo FX with dedicated returns, PEQ and DFX Shaper
- FX emulations of popular industry standard devices
- Input, output and insert soft patchbays
- Up to 8 channel Gangs with choice of which parameters to link
- 16 DCAs with DCA or Mute Group mode
- Built-in signal generator and RTA
- User definable channel names and colours
- Libraries, Scenes and Show memories with USB transfer and Scene filter
- Firmware and memories compatible across all models
- Store all or selected items in Scene memories
- Get started quickly with built-in Template Shows
- 8 Password protectable User Profiles
- Compatible with Allen & Heath PL remote controllers and iDR Series
- MIDI interface at both the MixRack and Surface
- High performance, recallable mic/line preamps
- Digital +/-24dB Trim for FOH/Monitor gain sharing
- Low latency, low noise, very high preamp and mix headroom
- Relay protected outputs
- Redundant backup PSU capability

System components

The MixRack is the heart of the digital audio processing system, housing the **64x32 DSP mix engine** together with control and audio networking interfaces. The DSP can be configured for mono/stereo and type of mix (group, aux, mains, matrix). The system provides full dynamics, EQ and delay processing for all inputs and masters, 8 built-in 'RackExtra' effects and 16 DCA groups. The 8FX returns add to the 64 channels providing up to 72 sources to the mix. All racks provide the full 64x32 DSP processing and differ only in the number of physical inputs and outputs available. The Port B option allows digital mic splitting and system expansion from a choice of audio networking cards.

iDR-64 Biggest rack: 9U, 64 Mic/Line in, 32 out, Port B

iDR-48 Standard rack: 8U, 48 Mic/Line in, 24 out, Port B

iDR-32 Mid sized rack: 6U, 32 Mic/Line in, 16 out, Port B

iDR-16 Smallest rack: 3U, 16 Mic/Line in, 8 out, Port B

These MixRacks are also available with **AES digital outputs** fitted (last card replaced with 2 dual channel AES sockets).

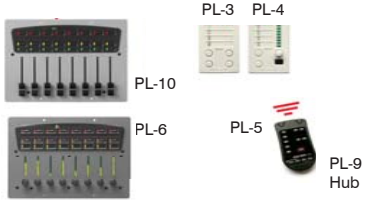
xDR-16 Audio expander: 16 Mic/Line in, 8 out, Port B

The Surface is simply a **network controller** for the MixRack. It has a built-in interface for local audio which is transported to and from the MixRack via the ACE connection along with the Ethernet control. Each bank of faders has 4 or 6 layers providing a total of 72, 80 or 112 control strips depending on Surface size. These strips are freely assignable as inputs, mix masters or DCAs in any combination.

iLive-T112 Biggest surface:
28 faders, 4 layers = 112 strips
16 local line in = 8 TRS, 4 RCA, 2 SPDIF
14 local out = 8 TRS, 2 RCA, 1 SPDIF, Monitor

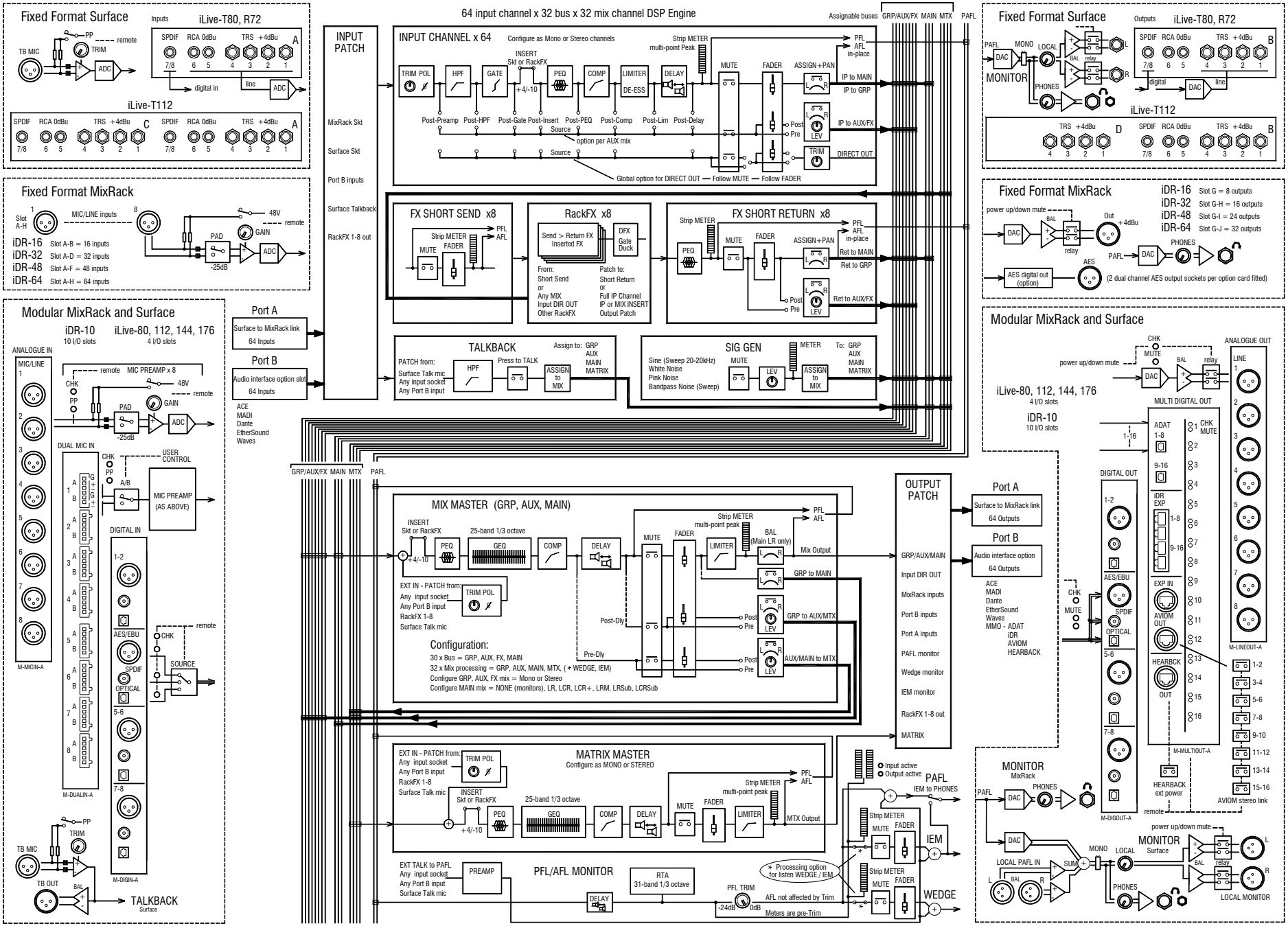
iLive-T80 Mid sized surface:
20 faders, 4 layers = 80 strips
8 local line in = 4 TRS, 2 RCA, 1 SPDIF
10 local out = 4 TRS, 2 RCA, 1 SPDIF, Monitor

iLive-R72 Smallest surface:
12 faders, 6 layers = 72 strips
8 local line in = 4 TRS, 2 RCA, 1 SPDIF
10 local out = 4 TRS, 2 RCA, 1 SPDIF, Monitor



PL Series controllers A range of remote controllers is available with assignable switches, LEDs, encoders and faders. A PL-8 4in/4out GPIO controller is also available. These connect to the MixRack via the PL-Anet serial port using CAT5 cable and can be configured using the Surface or laptop. The PL-9 hub is allows star point instead of daisy chain connection. More information on the PL Series is available on the Allen & Heath web site.

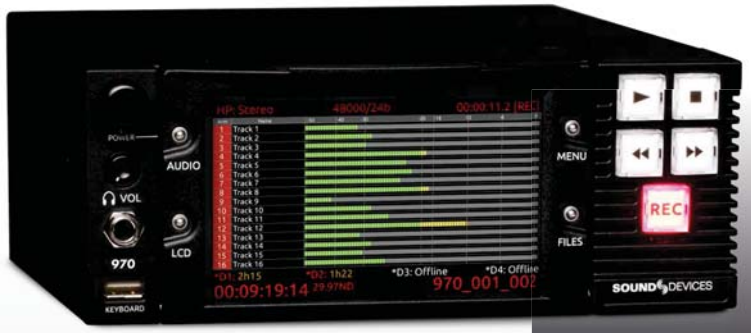
ANNEXE 12


Fixed Format Surface
Inputs
iLive-T80, R72
SPDIF
RCA 0dBu
TRS +4dBu
TB MIC
PP
TRIM
remote
ADC
digital in
line
iLive-T112
Fixed Format MixRack
MIC/LINE inputs
48V
GAIN
PAD
-25dB
iDR-16 Slot A-B = 16 inputs
iDR-32 Slot A-D = 32 inputs
iDR-48 Slot A-F = 48 inputs
iDR-64 Slot A-H = 64 inputs
Modular MixRack and Surface
iDR-10
10 I/O slots
iLive-80, 112, 144, 176
4 I/O slots
ANALOGUE IN
MIC/LINE
MIC PREAMP x 8
CHK
DUAL MIC IN
USER CONTROL
A/B
MIC PREAMP
(AS ABOVE)
DIGITAL IN
AES/EBU
SPDIF
OPTICAL
SOURCE
M-MICIN-A
M-DUALIN-A
M-DIGIN-A
TB OUT
BAL
TALKBACK
Surface
Port A
Surface to MixRack link
64 Inputs
Port B
Audio interface option slot
64 Inputs
ACE
MADI
Dante
EtherSound
Waves
64 input channel x 32 bus x 32 mix channel DSP Engine
INPUT PATCH
MixRack Skt
Surface Skt
Port B inputs
Surface Talkback
RackFX 1-8 out
INPUT CHANNEL x 64
Configure as Mono or Stereo channels
Strip METER
multi-point Peak
TRIM POL
HPF
GATE
INSERT
Skt or RackFX
+4/-10
PEQ
COMP
LIMITER
DE-ESS
DELAY
MUTE
FADER
ASSIGN+PAN
PFL
AFL
in-place
IP to MAIN
IP to GRP
IP to AUX/FX
DIRECT OUT
Post-Preamp
Post-HPF
Post-Gate
Post-Insert
Post-PEQ
Post-Comp
Post-Lim
Post-Delay
Source
option per AUX mix
Global option for DIRECT OUT — Follow MUTE — Follow FADER
FX SHORT SEND x8
RackFX x8
FX SHORT RETURN x8
Send > Return FX
Inserted FX
DFX
Gate
Duck
From:
Short Send
or
Any MIX
Input DIR OUT
Other RackFX
Patch to:
Short Return
or
Full IP Channel
IP or MIX INSERT
Output Patch
Ret to MAIN
Ret to GRP
Ret to AUX/FX
TALKBACK
PATCH from:
Surface Talk mic
Any input socket
Any Port B input
Press to TALK
Assign to: GRP
AUX
MAIN
MATRIX
SIG GEN
Sine (Sweep 20-20kHz)
White Noise
Pink Noise
Bandpass Noise (Sweep)
METER
To: GRP
AUX
MAIN
MATRIX
GRP/AUX/FX MAIN MTX PAFL
MIX MASTER (GRP, AUX, MAIN)
25-band 1/3 octave
GEQ
BAL
(Main LR only)
Mix Output
GRP to MAIN
GRP to AUX/MTX
AUX/MAIN to MTX
Post-Dly
Pre-Dly
EXT IN - PATCH from:
Configuration:
30 x Bus = GRP, AUX, FX, MAIN
32 x Mix processing = GRP, AUX, MAIN, MTX, (+ WEDGE, IEM)
Configure GRP, AUX, FX mix = Mono or Stereo
Configure MAIN mix = NONE (monitors), LR, LCR, LCR+, LRM, LRSub, LCRSub
MATRIX MASTER
Configure as MONO or STEREO
MTX Output
PFL/AFL MONITOR
PREAMP
RTA
31-band 1/3 octave
PFL TRIM
-24dB
0dB
AFL not affected by Trim
Meters are pre-Trim
* Processing option
for listen WEDGE / IEM
Input active
Output active
PAFL
IEM to PHONES
IEM
WEDGE
OUTPUT PATCH
GRP/AUX/MAIN
Input DIR OUT
MixRack inputs
Port B inputs
Port A inputs
PAFL monitor
Wedge monitor
IEM monitor
RackFX 1-8 out
MATRIX
MMO - ADAT
iDR
AVIOM
HEARBACK
Assignable buses
Outputs
MONO
LOCAL
BAL
relay
MONITOR
PHONES
digital
line
iDR-16 Slot G = 8 outputs
iDR-32 Slot G-H = 16 outputs
iDR-48 Slot G-I = 24 outputs
iDR-64 Slot G-J = 32 outputs
power up/down mute
Out
+4dBu
AES
AES digital out
(option)
(2 dual channel AES output sockets per option card fitted)
MULTI DIGITAL OUT
ADAT
1-8
9-16
iDR
EXP
EXP IN
AVIOM
OUT
HEARBCK
DIGITAL OUT
AES/EBU
SPDIF
OPTICAL
M-MULTIOUT-A
M-DIGOUT-A
M-LINEOUT-A
HEARBACK
ext power
AVIOM stereo link
LOCAL PAFL IN
SUM
LOCAL MONITOR
remote

SOUND DEVICES 970
AUDIO & VIDEO PRODUCTION PRODUCTS

970

64-Track Dante and MADI Audio Recorder



The Sound Devices 970 simplifies production that requires high-quality, high-track-count audio recording. This comprehensive 64-track Dante and MADI-equipped multi-track audio recorder provides performance, quality, and reliability.

The 970 records up to 64 channels of monophonic or polyphonic 24-bit WAV files from any of its 144 audio inputs. Connections include 64 channels of Ethernet-based Dante, 64 channels of optical and coaxial MADI, eight channels of line-level analog, and eight channels of AES digital. Any input can be assigned to any track. The recorder also supports 32-track recording at 96 kHz.

The 970 records audio on up to four SSD drives, two in removable drive caddies held in front-panel drive bays and two connected through back-panel eSATA ports. With four available drives, the 970 can record material simultaneously to multiple drives, creating backups and eliminating time-consuming post-record copying.

With its built-in rock-steady Ambient Lockit timecode technology, the 970 operates as a master clock and also accepts jammed timecode from cameras and other sources. The 970 supports all common production time-code rates and modes, and offers word-clock synchronization from external word clock, video sync, MADI, and AES. Sample rate converters on each input simplify connecting multiple digital channels.

If all external power sources deplete or fail, PowerSafe circuitry keeps the 970 operating for up to 10 seconds, cleanly closes all file operations, and then safely shuts down the recorder.

Back Panel

KEY FEATURES

- Up to 64-track WAV mono or WAV poly recording to removable solid-state drives
- 64 channel Dante audio I/O (32 channels at 96 kHz SR)
- 64 channel MADI optical and coaxial I/O (32 channels at 96 kHz SR)
- 8 line-level analog inputs and outputs
- 8 channel AES3 digital audio I/O
- PowerSafe circuitry provides complete file protection from power loss. Ten second internal power reserve safely closes files and shuts down unit
- Rock-steady Ambient Lockit time code master clock built in
- Format conversion between analog, AES digital, MADI, and Dante
- Simultaneous and sequential recording to four drives, two in internal removable drive caddies and two via eSATA
- Fast file transfer over SMB Ethernet
- Large 5-inch screen provides metering and intuitive menu control
- External RS-422 control
- Embedded web-server control panel allows machine control through web browsers over Ethernet-based networks
- Compact half-rack, 2RU chassis
- Dual DC power connections, 4-pin XLR @ 10-27 VDC

SOUND DEVICES 970
AUDIO & VIDEO PRODUCTION PRODUCTS

970

64-Track Dante and MADI Audio Recorder

SPECIFICATIONS

Frequency Response (System)
10 Hz to 40 kHz ± 0.5 dB, -3 dB @ 65 kHz
(96 kHz sampling rate reference 1 kHz)

THD + Noise (System)
0.004% max
(@ 1 kHz, 22 Hz–22 kHz)

Equivalent Input Noise (Analog)
-126 dBu (-128 dBV) maximum. (22 Hz - 22 kHz bandwidth, flat filter, trim control fully up)

Inputs
Analog Line: active-balanced for use with ≤600 ohm mics, 4k ohm actual;
AES: AES3, balanced, 110 ohm, 2 V p-p, accepts 32k, 44.1k, 48k, 192 kHz, SRC per input
DANTE: Ethernet primary and secondary, auto network configuration or fixed IP address, 44.1, 48, 96 kHz input support
MADI (AES 10): optical and coaxial, 44.1, 48, 96 kHz input support

Channel Gain
-25 db to +6 Mic-In-to-Line-Out: 91 dB

Maximum Input Level (Analog)
0 dBu (0.78 Vrms)

Digital Delay
Up to 400 ms per input in 1 ms increments

Output Type (Analog)
Line (DB25): active-balanced for use with ≥600 ohm inputs, 100 ohms
Headphones (1/4"): unbalanced, stereo, use with 8-2k ohm headphones, 100 ohms

Line Output Clipping Level (Analog) 1% THD)
20 dBu minimum with 10k load

Maximum Output Level (Analog)
+18 dBu (6.15 Vrms)

Recording Tracks
64 tracks maximum at 48 kHz SR, 32 tracks at 96 kHz SR.
WAV (broadcast Wave file format) monophonic and polyphonic

A/D
24-bit, (16-bit selectable) 114 dB, A-weighted dynamic range typical; sampling rates of 44.1 kHz, 47.952 kHz, 48 kHz, 48.048 kHz, 88.2 kHz, 96 kHz

Digital Outputs (AES3)
AES3 transformer-balanced, 2 V p-p, AES and S/PDIF compatible

Recording File Type
Monophonic or polyphonic WAV file with Broadcast WAV metadata

Recording Storage Type
SATA interface via PIX-CADDY to SD-approved 2.5-inch drives (front panel)
eSATA connections (rear panel)
exFAT volume formatting

Sample/Timecode Accuracy
± 0.2 ppm (0.5 frames per 24 hours)

Sync Output
Analog bi-, tri-level sync / genlock, word clock (square wave, 48 kHz sampling rate, 3.3 vp-p, 75 ohm)

Sync Input
Analog bi-, tri-level sync / genlock, word clock (square wave, 48 kHz sampling rate, 3.3 Vp-p, 75 ohm),

Timecode
Modes Supported: Off, Rec Run, Free Run, 24h Run, External, LTC Halt,
Frame Rates: 23.976, 24, 25, 29.97DF, 29.97ND, 30DF, 30ND
Accuracy: Ambient generator, 0.5 frame in 24 hr
Time Code Input: 20k ohm impedance, 0.3 V - 3.0 V p-p (–17 dBu - +3 dBu)
Time Code Output: 1k ohm impedance, 3.0V p-p (+12 dBu)

Control
RS-422 Machine control
Ethernet Web-based control of setup menu and transport, auto assignment or IP address or manual fixed IP address
GPIO on 3 pins, Phoenix connector

Keyboard
Front-panel USB host. Keyboards without hubs acceptable.

Powering
PowerSafe circuitry 10-27 VDC on dual / redundant 4-pin XLR connector,
pin-4 = (+), pin-1 = (-)

Dimensions and Weight
Size (H x W x D): 3.3" x 8.6" x 10.3" (8.4 cm x 21.8 cm x 26.2 cm)
Weight: 7.5 lbs (3.4 kg)
Operating Temperature: -10 C to +40 C

SOUND DEVICES
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Reedsburg, Wisconsin 53959 USA
+1 608.524.0625 main
+1 608.524.0655 fax

DISCOVER MORE ABOUT SOUND DEVICES PRODUCTS AT **www.sounddevices.**

ALLEN&HEATH **Dante Option Card** Publication **AP8340** Issue 4

Fitting and Setup Guide

This guide applies to Dante Release 2 (firmware 3.6.4) or later.

This release adds dual redundancy and supports bridging of other control networks over Dante. Please refer to the notes regarding differences with previous firmware 3.4.15.

Part number **M-DANTE-A**

M-DANTE is one of several plug-in card options available from Allen & Heath that may be fitted to iLive, GLD and ME Series products.

Dante™ is a high performance, multi-channel, AVB ready industry standard digital media transport system developed by Australian company **Audinate** that runs over standard IP networks and can distribute signals between iLive, computers and 3rd party Dante™ enabled equipment. Its main benefits are:

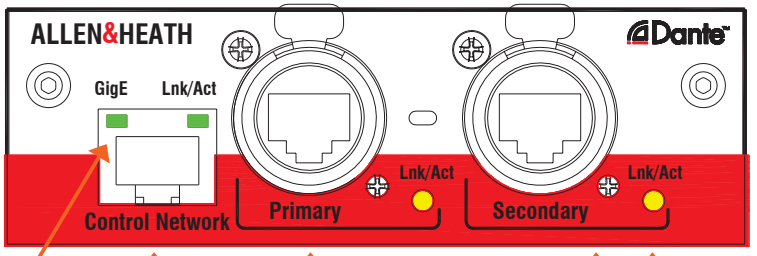
- 64 channel bi-directional audio plus control over CAT5
- Uses standard off-the-shelf computer networking equipment
- Easy to add, name, remove and rearrange devices
- Secondary port for redundant connection option
- Control port can bridge other control network over Dante
- Very low latency
- Direct connection to computer for multitrack recording
- Dante Virtual Soundcard (DVS) software
- Dante Controller software for setting up the network

Note The Allen & Heath **M-DANTE** card provides an interface to the Dante network. The Dante 'Brooklyn II' hardware used and the software required to set it up and record to computer is provided and supported by **Audinate**. For further information or help on using Dante please refer to the documentation and support at Audinate: www.audinate.com

M-DANTE is supplied with **one Dante Virtual Soundcard licence** to enable a single computer. More can be purchased from Audinate if required. The token below is needed to obtain your licence Id. Please read the instructions provided within this guide.

Dante Virtual Soundcard Licence ID token:

Connections and indicators Firmware version 3.6.4



Link status One LED indicates network activity. The other indicates that a Gigabit Ethernet link has been established.

Primary Port Gigabit Ethernet, locking EtherCon RJ45 connector. The **main port.** Connect to the Primary port on another Dante equipped device to link the devices directly. Connect to a Gigabit switch to connect multiple Dante enabled devices. Connect to the Ethernet port on a PC or Mac to allow audio recording or playback via the Dante Virtual Soundcard.

Link status Flashes to indicate network activity.

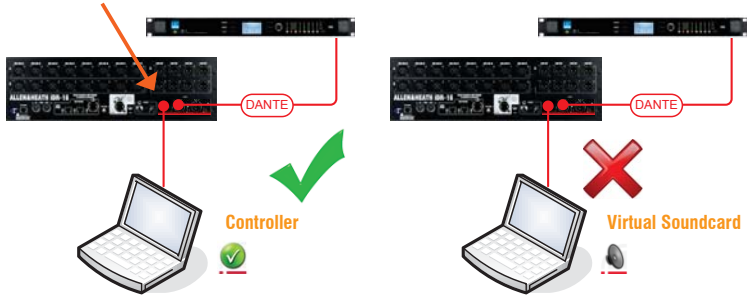
Control Network Gigabit Ethernet, RJ45 connector. Can be used to connect a computer running Dante Controller for setting up the network (as long as a Dante device is already connected to the Primary Port).

Can also be used to **bridge another network** over Dante. For example, plug into an iLive Network socket to bridge its network over Dante and allow Editor control from the same laptop running Dante Controller.

This port is intended for control. Use with Dante Controller. Use the Primary or Secondary port for working with Dante Virtual Soundcard and audio.

Secondary Port Gigabit Ethernet, locking Ethercon RJ45 connector. Can be used for redundancy to allow a backup cable connection when the card is in **Redundant Mode**.

The Primary and Secondary ports become a two port switch for connecting up to 2 devices when the card is in **Switched Mode**.



ALLEN&HEATH GLD iLive

UNDERSTANDING M-MADI

M-MADI is one of a range of option cards which can be fitted to an iLive to enable integration with other systems.
Multi-channel Digital Audio Interface (MADI) is an industry standard protocol for digital audio supported by many manufacturers.
Typically MADI is used for multi-channel recording and playback. Long coaxial cable runs are possible depending on the driver capability of the hardware, making it a frequent choice of equipment interconnection in gigs, studios, and broadcast applications.
E.g. a 150m (490') cable-run is reliable M-MADI to M-MADI using 75ohm Belden 1505A cable. MADI cables are directional, so there is one connector for MADI-out, and one for MADI-in. It is a point-to point interface between a source and a destination.

M-MADI gives access to 64 input and 64 output channels and can be fitted to:

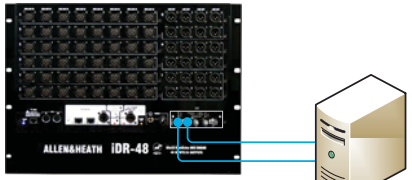
- Port B expansion slot in iLive fixed format MixRacks (iDR-16, iDR-32, iDR-48 & iDR-64) or expander (xDR-16)
- Port B and/or Port A of iLive modular MixRacks (iDR0, iDR10) if fitted with the RAB-2 standard.
- Port A of iLive modular Surfaces 80/112/144/176 if they are fitted with the new RAB-2 standard.
- I/O Module slot in GLD-80.

FEATURES at a glance

Dual link mode: connect and stream with two separate devices. Inputs to the system can be patched from the two MADI streams in blocks of 8, while the same outputs are broadcast on both links.
Redundant mode: Link 1 and Link 2 can be used as a redundant pair. Audio and clock will continue if one of the cables fails.
Aux BNC:

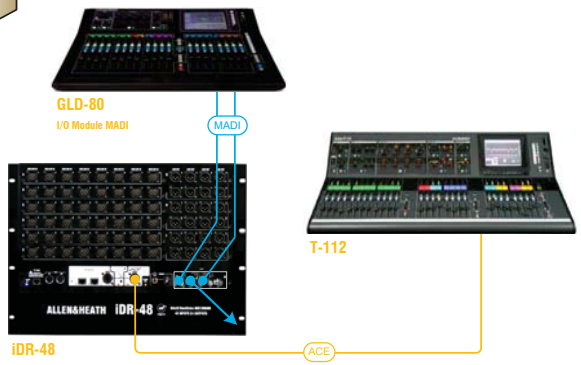
- Out 1 mirror: This mode duplicates the MADI stream 'Out 1', useful for splitting signals to multiple devices.
- In 1 Thru: The MADI stream 'In 1' is passed 'thru', allowing daisy chaining of signals to an unlimited number of devices. The signal is fully reclocked and buffered for optimal reliability, and the signal will automatically switch to 'In 2' if 'In 1' fails in redundant mode.
- WordClock IN: Provides a word clock input to sync the system from an external (48 KHz) source, for example a distributed word clock. This is a high-sensitivity input, locking to a word clock signal as low as 200 mV p-p.
- WordClock OUT: A standard word clock output to allow other systems to sync from the iLive system, useful when connecting to 3rd party MADI devices which may not be able to sync from the MADI stream.

APPLICATION EXAMPLES



Record / playback <64 channels with a computer system, MADI audio interface and suitable DAW.

M-MADI also provides BNC word clock connection to fixed format MixRacks for external sync operations.



Here, M-MADI provides redundant digital split linking between an iLive and a GLD system; <64 channels from the master MixRack are sent to the Monitors system for independent processing. The signals can also be sent to a record system or third console via the Aux BNC connector.

ALLEN&HEATH GLD iLive

iLive Surface to MixRack audio link with redundancy plus 30 record feeds

Here M-MADI is used to form the two-way link between the iLive modular surface and the iDR10 MixRack. Both need to be fitted with RAB2 remote audio module and M-MADI option cards in Port-A. 4 cables are used: IN/OUT on Link 1, and IN/OUT on Link 2. Redundant mode is chosen from the iLive touch-screen, this will ensure continuous audio signal and clock sync in the case of one link being broken. The AUX BNC can be useful to provide some record feeds from the MixRack or Surface (ch1-32 are reserved for I/O at the surface, ch63/64 are PAFL). Set the AUX BNCs to duplicate the signals present at the IN sockets of the surface M-MADI, and to mirror the OUT signals at the MixRack M-MADI. Sources for the channels and AUX BNC can be configured in the Port-A tab on the OUTPUTS page of the touch-screen.

M-MADI SPECIFICATIONS

Ultra high-sensitivity inputs: An equalizing receiver circuit, originally designed for HD video, allows error-free reception of signals where a normal receiver would not even detect that a signal is present. As a consequence, connecting two A&H MADI cards together allows cable runs in excess of 150m[1] (triple the standard!), and electrical noise immunity is increased all round. All inputs, including the word clock input, are also AC-coupled, to avoid potential ground loop problems.
Flexible Syncing: Users may select either of the input MADI streams (Link 1 or Link 2), or the 'Aux' BNC word clock input, when selected, as the system clock source. Note that iLive is a 48 KHz system, and any selected clock sources must be 48 KHz[2].

MADI Inputs x2	Ultra high-sensitivity equalizing receivers. 56 or 64 channels (auto detect), 24 bit. (AC-coupled).
MADI Outputs x3	Standards compliant, low jitter transmitters. 64 channels, 24 bit. (Including 'Aux' BNC).
Word clock input	High-sensitivity down to 200 mV peak-peak with 75R termination. (AC-coupled).
Word clock output	5V peak-peak through 75R source termination[3].
Status indicators	Per MADI Input: link/activity (yellow), Stream Error (red). 'Aux' BNC mode indicators (yellow).
Sync Sources	MADI Link 1, MADI Link 2, Word clock (via 'Aux' BNC).
Audio Clock Sync range	48 KHz ±100ppm[2]
Cable length[1]	150m (A&H ↔ A&H) 150m (3rd party → A&H) 50-100m (3rd party ↔ A&H) (consult 3rd party documentation) 300m (A&H ↔ A&H, mains filters on both devices)

[1] Performance depends on cable type used. See http://www.ilive-digital.com/cables.html for cable recommendations.
[2] iDR-10 and iDR-0 users whose systems have been fitted with M-RAB2 may select a wider lock range; see the appropriate documentation for details.
[3] Word clock source termination can be turned off via a jumper setting to support some older devices with CMOS word clock inputs.

LaCie d2 Quadra Hard Disk

eSATA 3Gb/s, Hi-Speed USB 2.0, FireWire 400 et FireWire 800

LaCie d2 Quadra Hard Disk

Interface quadruple
pour un usage professionnel

Référence	301440	301441	301442	301425	301500
Capacité***	500 Go	750 Go	1 To	1,5 To	2 To
Interface	1 port eSATA 3 Gb/s 2 ports FireWire 800 (9 broches) 1 port FireWire 400 (6 broches) 1 port Hi-Speed USB 2.0 (compatible USB 1.1)				
Taux de transfert de l'interface (vitesse de bus maximale)	eSATA : jusqu'à 3 Gbits/s (300 Mo/s) FireWire 800 : jusqu'à 800 Mbits/s (100 Mo/s) FireWire 400 : jusqu'à 400 Mbits/s (50 Mo/s) Hi-Speed USB 2.0 : jusqu'à 480 Mbits/s (60 Mo/s)				
Taux de transfert de lecture en rafales** : (vitesse de bus théorique maximale)	eSATA : jusqu'à 105-115 Mo/s FireWire 800 : jusqu'à 75-85 Mo/s FireWire 400 : jusqu'à 35-40 Mo/s Hi-Speed USB 2.0 : jusqu'à 30-35 Mo/s				
Vitesse de rotation	7 200 T/min				
Taille de la mémoire cache	16 Mo ou plus				
Shortcut Button*	Pour lancer n'importe quelle application d'une simple pression				
Triple gestion de l'énergie*	« Auto » pour le mode d'économie d'énergie, « On » pour l'accès instantané, « Off » pour la protection de données				
Poids	1,5 kg				
Dimensions (L x H x P)	44 x 160 x 173 mm				
Garantie limitée	3 ans				

7. Spécifications techniques

Affichages

ISP A/B.....Voyant de signal d'entrée présent (vert)
GR A/B.....Voyant de réduction de gain (jaune)
OVL A/B.....Voyant de surcharge/erreur (rouge)
MUTE A/B.....Voyant Mute/Standby (vert)
Liquid Crystal Display (LCD).....Affichage graphique / 120 x 32 Pixels

Commandes

POWER.....Interrupteur d'alimentation
MUTE A/B.....Interrupteur Mute /Standby
LEVEL/PUSH MENU.....Encodeur rotatif numérique; accède à toutes les fonctions (Canal A /B) dont :
Commande de niveau.....de – 57.5 dB à +6 dB
avec des crans tous les 0.5 dB
Configurations de filtre.....
.....jusqu'à trois circuits de filtrage spécifiques (ex : CUT/HFA/HFC)
Égalisateur.....égalisateur à 4 bandes parametriques/Notch en option
Réglage de délai.....0.3 à 340 msec.
avec crans de 0.1 msec.
Réglages de système. Toutes les enceintes d&b actuelles/linéaires (MAX/MAX12)
Coupling de canal.....accès commun au délai, EQ, délai+EQ
Protection.....blocage d'entrée de l'opérateur/mot de passe
Commande à distance.....dbCAN/RIB
Nom de l'appareil.....15 chiffres alphanumériques
Éclairage de l'affichage.....Off/On/Timeout 10 s[1]
Générateur de fréquences.....bruit rose ou onde sinusoïdale, 1 Hz - 20 kHz
avec crans tous les 1 Hz
.....niveau : – 57.5 dB ... +6 dB
avec crans tous les 0.5 dB
Buzzer.....Signal auditif pour messages d'erreur

Connecteurs

INPUT ANALOG CH A / CH B.....3 pin XLR femelle
Affectation des pins : 1 = GND, 2 = signal pos., 3 = signal neg.
Input impedance.....44 kohms, équilibrage électronique
Mode de réjection commun (CMRR, 20 Hz – 20 kHz).....> 63 dB
Maximum input level.....+25 dBu
.....+27 dBu @ 0 dBFS
LINK ANALOG CH A / CH B.....3 pin XLR mâle
Affectation des pins : 1 = GND, 2 = signal pos. , 3 = signal neg.
parallèle à l'entrée
INPUT DIGITAL AES/EBU.....3 pins XLR femelle, AES 3
Affectation des pins : 1 = GND, 2 = Signal, 3 = Signal
Input impedance.....110 ohms, transformateur équilibré
Sampling.....48 kHz / 96 kHz / 2 Ch/n
Synchronization.....Word-Sync : PLL-verrouillé à la source (mode esclave)
LINK DIGITAL (Output).....3 pin XLR mâle
équilibrage électronique
mise en mémoire tampon de signal analogique (rafraîchir)
relai de coupure de courant (dérivation)

OUT A/B.....EP5 / NL4 / NL8
dépend du type ou de la version d'entrée de l'enceinte
REMOTE.....2 x RJ 45 en parallèle
SERVICE.....D-SUB-9 femelle

1 Délai de temporisation de 10 s

Circuits de Protection

Limiteur de courant d'appel.....5 A RMS à 230 V
.....10 A RMS à 115/100 V
Interrupteur de l'enceinte sur délai.....Approx. 2 s
Protection contre la surtension électrique.....Jusqu'à 400 VAC
Réinitialisation de sécurité pour surchauffe.....75 °C / 167 °F
Court circuit ouvert de protection de sortie .....± 60 A pic
Circuit de protection contre la surcharge de sortie de l'amplificateur.....SOA de
.....l'étage de sortie

Données audio (Réglage linéaire avec filtre infrasonore)

Puissance de sortie évaluée (THD+N 0.1 %).....2 x 750 W dans 8 ohms
les deux canaux sont amplifiés
.....2 x 1200 W dans 4 ohms
les deux canaux sont amplifiés
Réponse en fréquence (–1 dB).....28 Hz - 40 kHz
THD+N (20 Hz – 20 kHz).....< 0.1 %
IM (SMPTE).....< 0.1 %
Ratio S / N (non pesé, RMS).....>110 dBr
Facteur d'amortissement (20 Hz – 1 kHz dans 4 ohms).....>200
Diaphonie (20 Hz – 20 kHz).....< – 65 dBr

Traitement du signal numérique

Taux d'échantillonage (sampling rate) :.....96 kHz / 27 Bit ADC / 24 Bit DAC
Retard de base.....0.3 msec.
ADC dynamic.....> 110 dB
Input dynamic.....> 127 dB
DAC dynamic.....> 110 dB

Alimentation électrique

Alimentation à découpage auto-sensible pour le secteur 115/230 V
(100/200 V en option), 50 - 60 Hz.
Connecteur secteur.....PowerCon (bleu)
Tension électrique du secteur 115/230 V (min./nom./max.).....
.....98/115/134 V, 50 - 60 Hz
bas de gamme
.....195/230/265 V, 50 - 60 Hz
haut de gamme
Tension électrique du secteur 100/200 V (min./nom./max.).....
.....85/100/117 V, 50 - 60 Hz
.....bas de gamme
.....170/200/234 V 50 - 60 Hz
haut de gamme
Fusible du secteur.....2 x 10 A de temporisation (T)
5 x 20 mm, haute sensibilité

Conditions de fonctionnement

Gamme de température*.....5°C – 35 °C / 41 °F – 95 °F
*Somme de la puissance de sortie moyenne de 2 x 400 W (800 W) en
4 ohms pour un fonctionnement continu
Gamme de température**.....5 °C – 45 °C / 41 °F – 113 °F
**Puissance de sortie réduite ou fonctionnement de courte durée
Humidité (rel.), moyenne.....70 %

Dimensions, poids

Hauteur x largeur x profondeur.....3 RU x 19" x 353 mm
.....3 RU x 19" x 13.9 "
Poids.....13 kg / 28.7 lb

3. Amplificateur D12

Fig. 2 : Amplificateur D12

3.1. Systèmes centrés sur le D12

Le D12 est un amplificateur à 2 canaux, équipé de circuits de traitement numérique du signal (Digital Signal Processors - DSP) qui assurent des paramétrages spécifiques aux enceintes. Il a été conçu pour pouvoir alimenter tous les baffles d&b actuels et peut également fonctionner en mode linéaire.

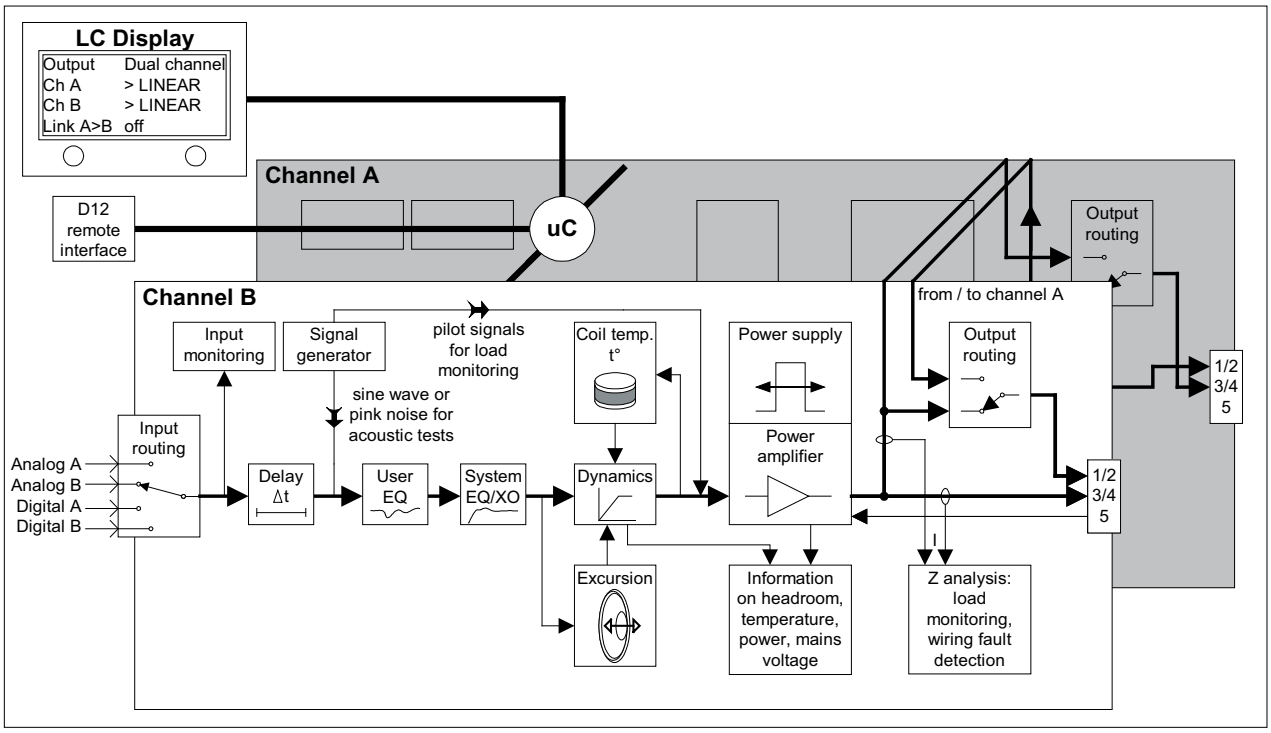
Le D12 est doté d'entrées de signal numérique et analogique et de sorties d'enceintes. Il est à même d'être contrôlé et surveillé à distance.

L'alimentation à découpage fonctionne avec une variété de tensions électriques de secteur et offre un haut rendement pour un poids moindre.

La commande de niveau, sur le panneau de façade, présente un encodeur numérique rotatif et un écran d'affichage LCD, qui permettent de sélectionner tous les modes de fonctionnement. Le D12 comprend un traitement du signal complet, tous les circuits de protection nécessaires, une interface REMOTE[1] et SERVICE[2], un large panel de connecteurs et de voyants d'état.

Le D12 occupe trois unités de racks de 19" x 353 mm (13.9") en acier inoxydable avec un panneau de façade en aluminium extrudé.

3.2. Schéma du dispositif



MICROPHONE CABLES

HIGH QUALITY BALANCED MIC. CABLES

SPECIFICATIONS

Configuration				
Part No.		2549	2791	3284
No. of Conductor		2		
Conductor	Details	30/0.12 OFC	105/0.05 A	
	Size(mm²)	0.339mm² (#22AWG)	0.206mm² (#24AWG)	
Insulation	Ov. Dia. (mm)	1.9φ (0.075")	1.5φ (0.059")	
	Material	XLPE(Cross-Linked Polyethylene)		
	Colors	Blue/Clear	Red/Clear	
Shield		Served Approx. 62/0.18A	Braid 24/6/0.10A	Braid 24/6/0.10TA
Jacket	Ov. Dia. (mm)	6.0φ (0.236")	5.5φ (0.217")	
	Material	Flexible PVC		Flexible TPE
	Colors	Black/Red/Yellow/Green/Blue	Black	Black/White
Roll Sizes		50 m (164Ft) 100m (328Ft) 200m(656Ft)		100m (328Ft)
Weight per 100m Roll		4.8 kg	4.2kg	3.4kg

ELECTRICAL & MECHANICAL CHARACTERISTICS

Part No.			2549	2791	3284
DC Resistance at 20°C	Inner Cond.		0.058Ω/m(0.018Ω/Ft)	0.09Ω/m(0.027Ω/Ft)	
	Shield		0.012Ω/m(0.004Ω/Ft)	0.02Ω/m(0.006Ω/Ft)	
Capacitance at 1kHz, 20°C (Partial C. Value) See below figure *(1)		K0	76pF/m(23 pF/Ft)	86pF/m(26 pF/Ft)	
		K1	11pF/m(3.4 pF/Ft)	10pF/m(3.1 pF/Ft)	
Inductance between conductors at 1kHz, 20°C			0.8μH/m (0.24μH/Ft)	0.8μH/m (0.24μH/Ft)	
Electrostatic Noise *(2)			50 mV Max.	250 mV Max.	
Electromagnetic Noise *(2)			0.15 mV Max.	0.15 mV Max.	
Microphonics at 50kΩ Load *(2)			30 mV Max.	30 mV Max.	
Voltage Breakdown			Must withstand at DC 500V/15 sec.		
Insulation Resistance			10^5 MΩ · m Min. at DC 125 V, 20°C		
Flex Life *(2)			14,500 cycles	131,000 cycles	53,000 cycles
Tensile Strength			657 N	578 N	
Emigration			Non-Emigrant to ABS		
Applicable Temperature			-20°C ~ + 70°C (-4°F ~ + 158°F)		-40°C~+60°C (-40°F~+140°F)

*(2) Using standard testing methods of Mogami Wire & Cable Corp. *(1) Partial Capacitance

SPEAKER CABLES

SUPERFLEXIBLE STUDIO SPEAKER CABLES

SPECIFICATIONS AND CHARACTERISTICS

Configuration					
Part No.			2972	3103	3104
No. of Conductor			4	2	4
Conductor	Details		7/26/0.12 OFC (bare)	7/50/0.12 OFC (bare)	
	Size		2.05mm² (#15AWG)	3.96mm² (#12AWG)	
Insulation Ov. Dia. (mm)			3.2φ(0.126"φ) PVC	4.5φ(0.177"φ) PVC	
Jacket	Ov.Dia. (mm)		10.5φ(0.413"φ)	12.0φ(0.472"φ)	14.5φ(0.571"φ)
	Material		Flexible PVC, Matte Black		
Weight per 100m (328Ft) roll			17kg	20kg	31kg

DC Resistance (20°C)			0.0088Ω/m (0.0027Ω/Ft)	0.005Ω/m (0.0015Ω/Ft)		
Inductance (20°C, 1kHz) (Refer to the figures shown in the capacitance data.)	1-2		0.7μH/m (0.21μH/Ft)	0.6μH/m (0.18μH/Ft)		0.6μH/m (0.18μH/Ft)
	1-3		0.7μH/m (0.21μH/Ft)	———		0.6μH/m (0.18μH/Ft)
Capacitance (20°C)	Frequency		100Hz	1kHz	10kHz	50kHz	100kHz
2972 	1-2		130pF/m (39.7pF/Ft)	100pF/m (30.5pF/Ft)	81pF/m (24.7pF/Ft)	74pF/m (22.6pF/Ft)	71pF/m (21.7pF/Ft)
	1-3		110pF/m (33.6pF/Ft)	79pF/m (24.1pF/Ft)	63pF/m (19.2pF/Ft)	57pF/m (17.4pF/Ft)	56pF/m (17.1pF/Ft)
3103 	1-2		106pF/m (32.3pF/Ft)	93pF/m (28.4pF/Ft)	83pF/m (25.3pF/Ft)	76pF/m (23.2pF/Ft)	74pF/m (22.6pF/Ft)
3104 	1-2		110pF/m (33.6pF/Ft)	99pF/m (30.2pF/Ft)	86pF/m (26.2pF/Ft)	78pF/m (23.8pF/Ft)	76pF/m (23.2pF/Ft)
	1-3		90pF/m (27.5pF/Ft)	78pF/m (23.8pF/Ft)	67pF/m (20.4pF/Ft)	61pF/m (18.6pF/Ft)	59pF/m (18.0pF/Ft)

COMMON SPECS.

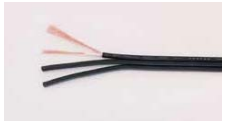
Voltage Breakdown	Must withstand at DC 500V/ 15sec.	
Insulation Resistance	10^4 MΩ · m Minimum at DC 125 V, 20°C	
Emigration of Jacket Material	Non-Emigrant to ABS resin	
Applicable Temperature	-20°C~+70°C(-4°F~ +158°F)	
Roll Sizes	2972	100m (328Ft) /300m (984Ft)
	3103/3104	100m (328Ft) /250m (820 Ft)
Standard	UL13 CL2X 75°C	

Remarks: Connecting the conductors as diagonal pairs greatly reduces mutual inductance, even though cross-talk interferance is negligible.

HIGH FREQUENCY COAXIAL CABLES

75Ω COAX. PARALLEL MULTICORE CABLES

Part No.2947



Part No.3243

The dual 75 ohm parallel "zip style" 2947 was originally developed to maintain maximum video performance while fitting the very compact 4 pin mini-Din (S-video) connector. Success in this challenging project required Mogami's highly experienced design and extremely precise manufacturing technique. Because this small cable is excellent for audio and video, two (2947) three (3243) and four (3294) conductor versions of this cable are now available to meet market demands in home and industrial audio-video, law enforcement, medical imaging, and security environments.

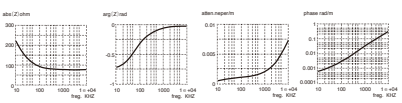
CABLE SPECIFICATIONS

Configuration			
Part No.		2947	3243
Core Configuration		2x75Ω Coax.	3x75Ω Coax.
Conductor Size		0.126mm² (#27AWG)	
Shield Structure		Served Shield	
Jacket	Material	Flexible PVC	
	Ov. Dia . (mm)	2×3.0φ(0.118")	3×3.0φ(0.118")
	Color	Black	
Roll Sizes		153m/305m (500Ft /1,000Ft)	153m (500Ft)
Weight Per 153m (500Ft) Roll		4kg	6.1kg

ELECTRICAL & MECHANICAL CHARACTERISTICS

Part No.		2947	3243
DC Resistance at 20°C	Inner Cond.	0.15Ω/m (0.046Ω/Ft)	
	Shield	0.035Ω/m (0.011Ω/Ft)	
Capacitance at 1kHz, 20°C		59pF/m (18.0 pF/Ft)	
Characteristic Impedance at 10MHz		75Ω±5%	
Attenuation (10MHz)		0.061dB/m (0.019 dB/Ft)	
Phase Constant (10MHz)		0.28 rad/m	
Electromagnetic Noise*		LOD (Limit of Detection)	
Voltage Breakdown		Must withstand at DC 500V/15sec.	
Insulation Resistance		10^4MΩ · m Min. at DC 500V, 20°C	
Flex Life*		24,000 cycles	28,000 cycles
Tensile Strength		392 N	530 N
Emigration		Non-Emigrant to ABS resin	
Applicable Temperature		-20°C~+70°C (-4°F~+158°F)	

Attenuation : 1 dB =0.1151 neper (1 neper =8.686 dB)
*Using standard testing method of Mogami Wire & Cable Corp.



DIGITAL INTERFACE CABLES

110Ω AES/EBU DIGITAL AUDIO CABLES

SPECIFICATIONS

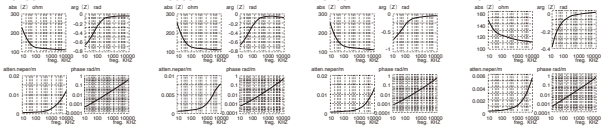
Configuration							
Part No.			3159	3228	3080	3135	3173
No. of Conductor			2	2	2	2	2
Conductor	Details		7/0.20A (7×#32AWG)	36/0.08OFC (36×#40AWG)	7/0.18A (7×#33AWG)	7/0.18A (7×#33AWG)	19/0.25A (19×#31AWG)
	Size (mm²)		0.22mm² (#24AWG)	0.18mm² (#25AWG)	0.178mm² (#25AWG)	0.178mm² (#25AWG)	0.932mm² (#18AWG)
Insulation	Ov. Dia.(mm)		1.4φ (0.055")	1.35φ (0.053")	1.5φ (0.059")	1.5φ (0.059")	2.8φ (0.110")
	Material		CPP	XLPE			CPP
	Colors		Red/Light green	Red/Clear	Red/Clear	Red/Clear	Red/White
Monofilament Filler	Ov. Dia.(mm)		———	———	———	———	1.87φ (0.0736")
	Material			Textile Fiber			LDPE (Clear)
Drain Wire	Details		7/0.20A (7×#32AWG)	———	7/0.18TA (7×#33AWG)	7/0.18TA (7×#33AWG)	20/0.18TA (20×#33AWG)
	Size(mm²)		0.22mm² (#24AWG)	———	0.178mm² (#25AWG)	0.178mm² (#25AWG)	0.509mm² (#21AWG)
Served Shield			Approx. 90/0.10A (Approx.90/#39AWG)	Approx. 87/0.10A (Approx.87/#39AWG)	Approx. 70/0.12A (Approx.70/#37AWG)	Approx. 70/0.12A (Approx.70/#37AWG)	Approx. 95/0.18A (Approx.95/#33AWG)
Ov. Jacket	Ov. Dia.(mm)		3.3φ (0.130"φ)	4.8φ (0.189"φ)	5.0±0.3φ (0.197±0.0118"φ)	5.0±0.3φ (0.197±0.0118"φ)	7.8±0.5φ (0.307±0.0197"φ)
	Material		PVC	Flexible PVC	Flexible PVC	Flexible PVC	Flexible PVC
	Color		Black/Gray	Black	Black/Blue	Black	Black
Roll Sizes			50 m (164Ft) 100m (328Ft) 200m (656Ft)			77m(250Ft) 305m(1,000Ft)	300m (983Ft)
Weight			2Kg/100m Roll	3.0Kg/100m Roll	3.3Kg/100m Roll	2.6Kg/250 Ft Roll	27Kg/300m

ELECTRICAL & MECHANICAL CHARACTERISTICS

Part No.		3159	3228	3080	3135	3173
DC Resistance at 20°C	Inner Conductor	0.081Ω/m (0.0247Ω/Ft)	0.10Ω/m (0.031Ω/Ft)	0.11Ω/m (0.034Ω/Ft)	0.11Ω/m (0.034Ω/Ft)	0.02Ω/m (0.006Ω/Ft)
	Shield Conductor	0.021Ω/m (0.0064Ω/Ft)	0.025Ω/m (0.0076Ω/Ft)	0.02Ω/m (0.0061Ω/Ft)	0.02Ω/m (0.0061Ω/Ft)	0.007Ω/m (0.0021Ω/Ft)
Capacitance at 1kHz, 20°C (effective capacitance value between inner twin)		46pF/m (14 pF/Ft)	53pF/m (16 pF/Ft)	46pF/m (14 pF/Ft)	46pF/m (14 pF/Ft)	50pF/m (15.3pF/Ft)
Inductance		0.8μH/m (0.24μH/Ft)	0.8μH/m (0.24μH/Ft)	1.0μH/m (0.31μH/Ft)	1.0μH/m (0.31μH/Ft)	0.7μH/m (0.21μH/Ft)
Characteristic Impedance		110Ω±10%	110Ω±5%	110Ω±5%	110Ω±5%	110Ω±10%
Attenuation (6MHz)		0.065dB/m (0.020dB/Ft)	0.069dB/m (0.021dB/Ft)	0.069dB/m (0.021dB/Ft)	0.069dB/m (0.021dB/Ft)	0.0347dB/m (0.0106dB/Ft)
Phase Constant (6MHz)		0.17rad/m	0.20rad/m	0.20rad/m	0.20rad/m	0.17rad/m
Electrostatic Noise *		50mV Max.				
Electromagnetic Noise At 10kHz *		2.0mV Max.				
Microphonics *		60mV	40mV Max.		40mV Max.	
Voltage Breakdown		Must withstand at DC 500V/15sec, 20°C				
Insulation Resistance		10^4MΩ · m Min. at DC 250V, 20°C				
Flex Life *		2,900 cycles	33,000 cycles	10,000 cycles	10,000 cycles	16,000 cycles
Tensile Strength		303 N	441 N	343 N	362 N	Over 980 N
Emigration		Non-Emigrant to ABS resin				
Applicable Temperature		-20°C~+60°C (-4°F~+140°F)				
Standard		AES3-100X (ANSI S. 4. 40-199-X) EBU Rech. 3250-E CEI / IEC 958 / COR Rec. 647	AES3-100X (ANSI S. 4. 40-199-X) EBU Rech. 3250-E CEI / IEC 958 / COR Rec. 647 UL AWM 2552, 30V, 60°C, VW-1		AES3-100X (ANSI S. 4. 40-199-X) EBU Rech. 3250-E CEI / IEC 958 / COR Rec. 647 UL44, CM, 300V, 60°C, #25AWG	AES3-100X (ANSI S. 4. 40-199-X) EBU Rech. 3250-E CEI / IEC 958 / COR Rec. 647 UL13 CL2X, 30V, 60°C

* Using standard testing methods of Mogami Wire & Cable Corp.

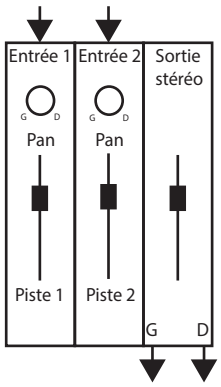
3159 3080 3135 3173

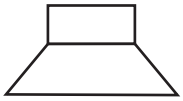


Option : FERRITE CORE is available for Part No.3080 and No.3135 to eliminate EMI noise. FITTING TUBING for ITT CANNON XLR connector is available for Part No.3080 and No.3135 cable.

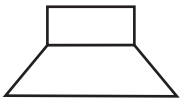
ANNEXE 20 (Document réponse)

Prise de son XY



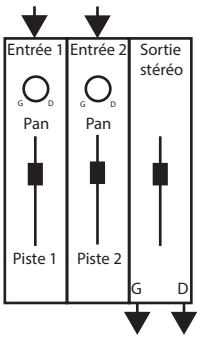


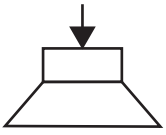
Enceinte gauche
+amplificateur



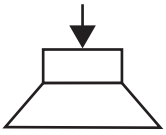
Enceinte droite
+amplificateur

Prise de son ORTF



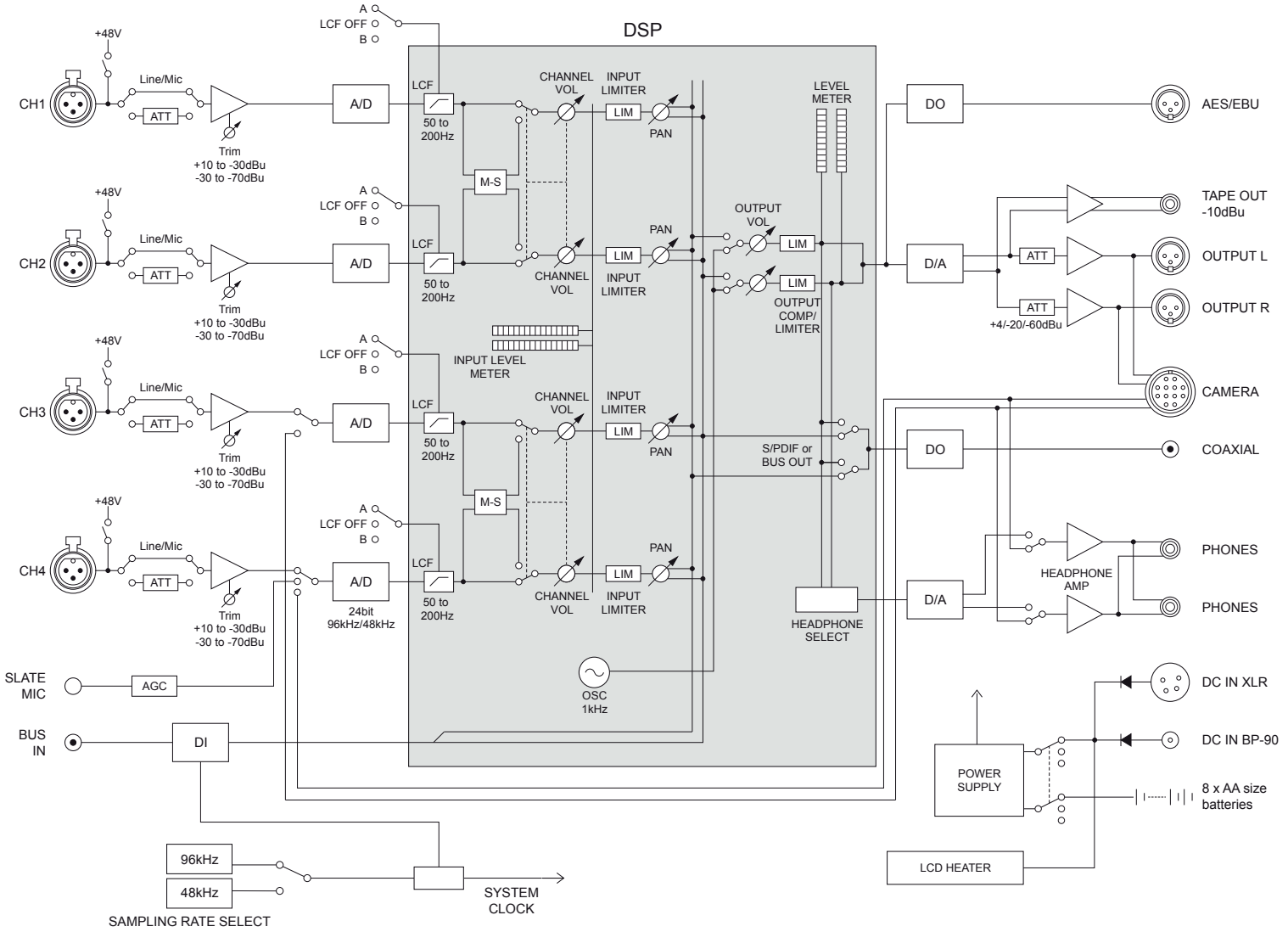


Enceinte gauche
+amplificateur



Enceinte droite
+amplificateur

Block Diagram



ANNEXE 22 (document réponse)

Console iLive-T112

Baie de 3 amplificateurs D12 cour

Baie de 3 amplificateurs D12 jardin

Microphone Shoeps 1

Microphone Shoeps 2

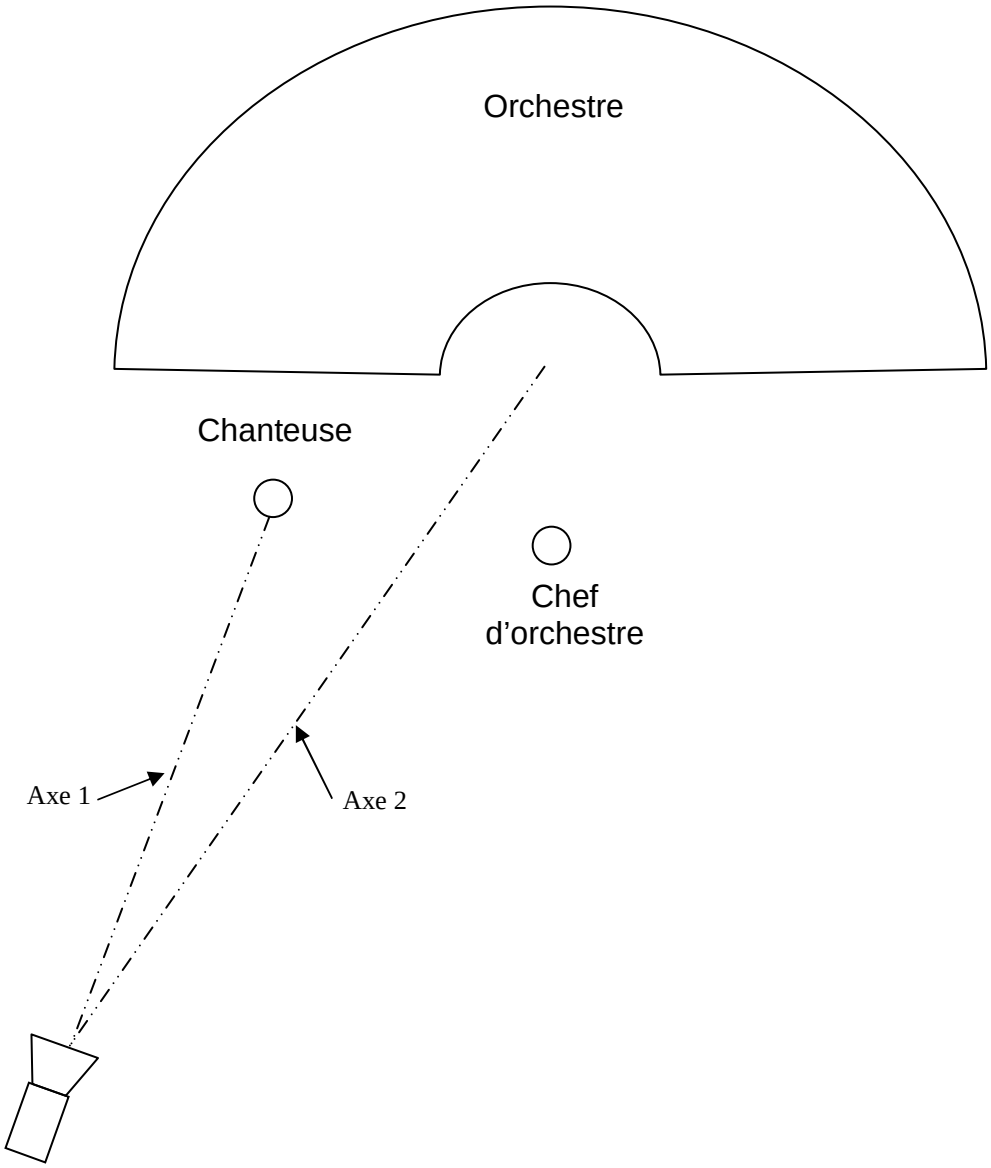
Microphone Shoeps n

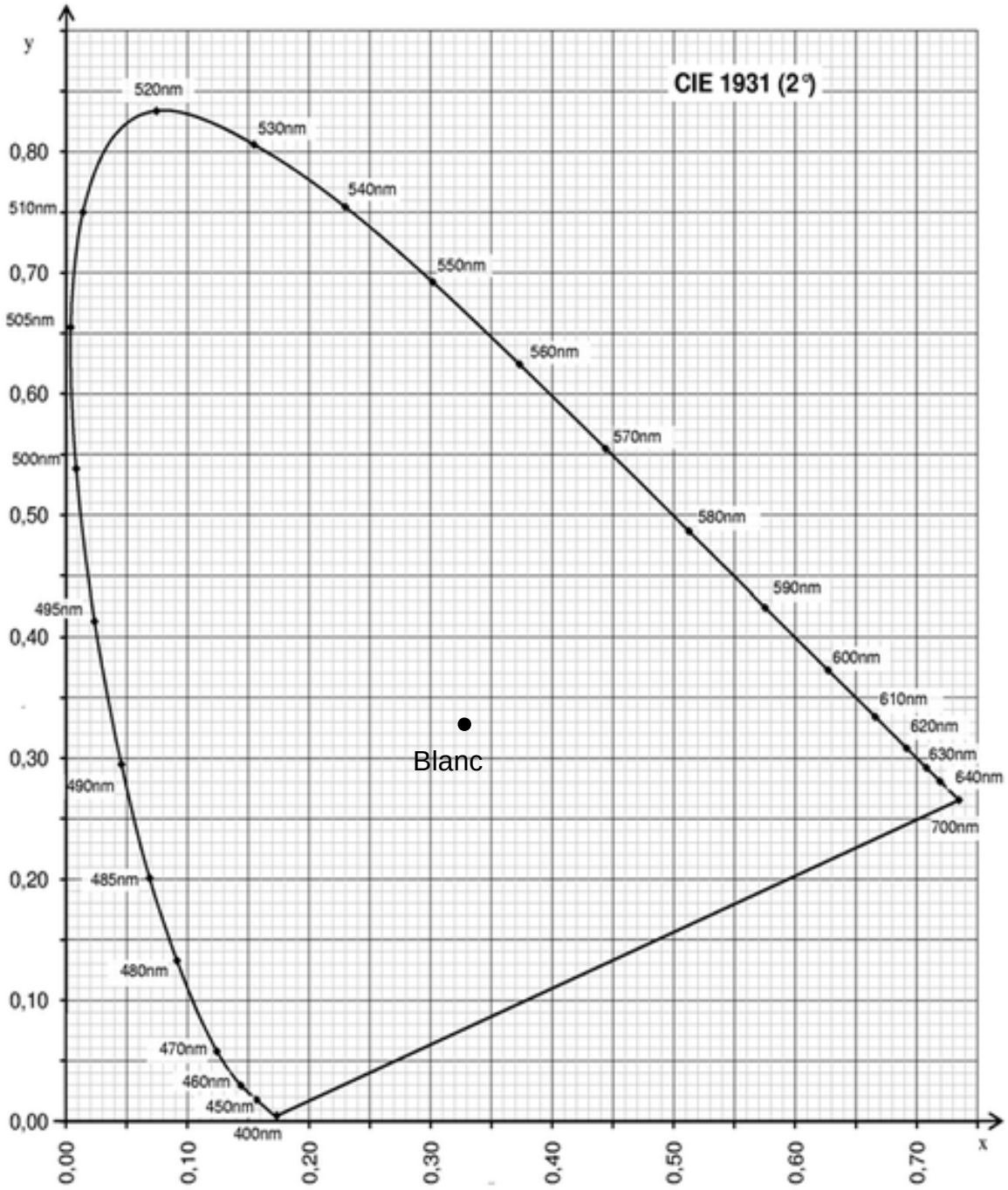
Rack iDR-32
+carte optionnelle
à préciser :

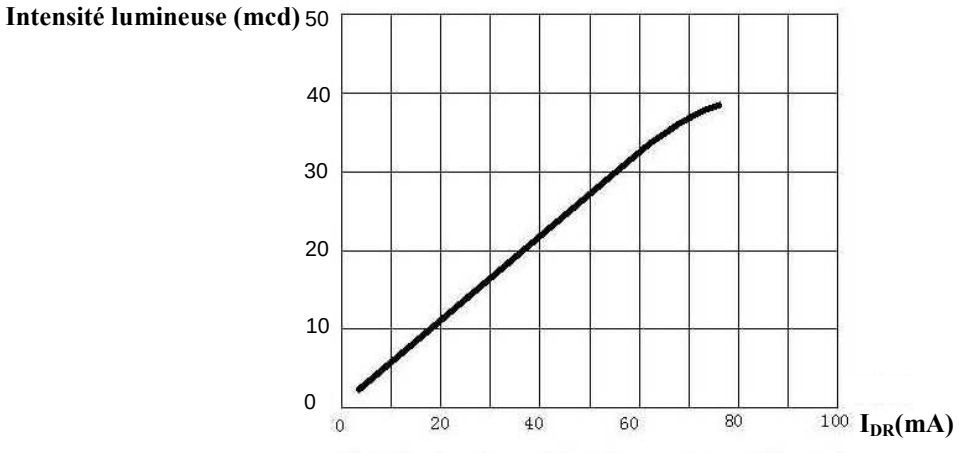
Switch salle

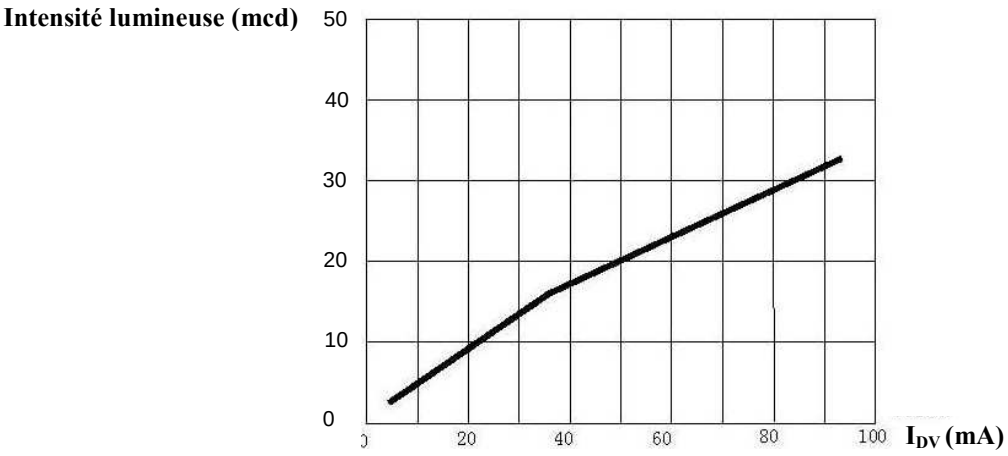
Enregistreur 970

ANNEXE 23




CIE 1931 (2°)
y
x
520nm
530nm
540nm
550nm
560nm
570nm
580nm
590nm
600nm
610nm
620nm
630nm
640nm
700nm
510nm
505nm
500nm
495nm
490nm
485nm
480nm
470nm
460nm
450nm
400nm
Blanc
0,80
0,70
0,60
0,50
0,40
0,30
0,20
0,10
0,00
0,00
0,10
0,20
0,30
0,40
0,50
0,60
0,70





Intensité lumineuse relative en fonction du courant direct : L.E.D. bleue

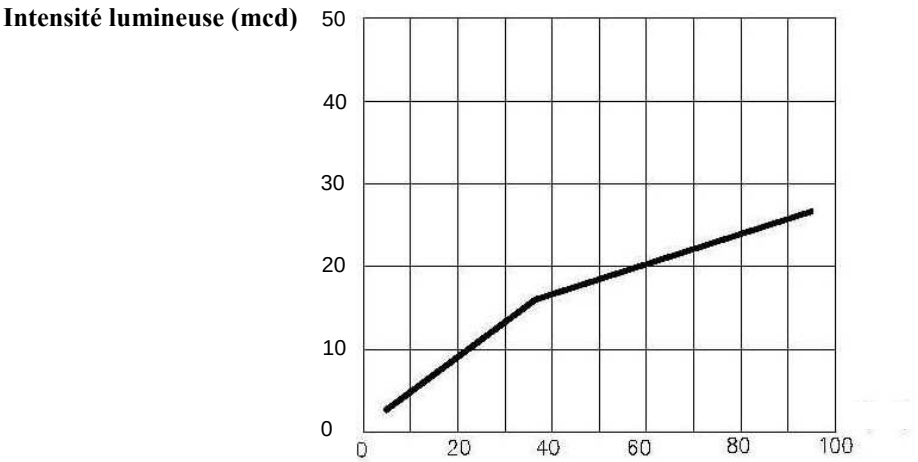


Figure / : Spectre en fréquence du signal reçu

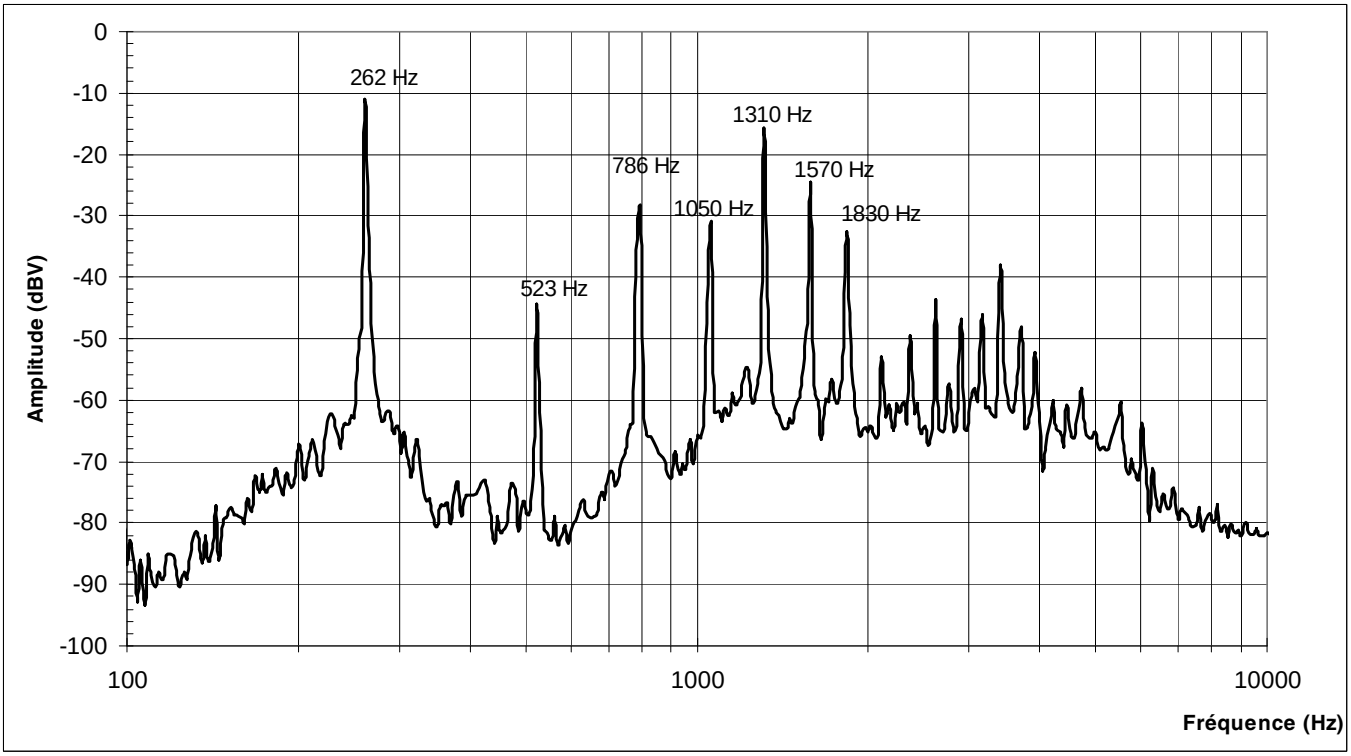


Figure 2 : Fréquence des notes de la gamme tempérée

Note	**Octave**				
	1	2	3	4	5
Do	65,4064	130,813	261,626	523,251	1046,50
Do♯ Reb	69,2957	138,591	277,183	554,365	1108,73
Re	73,4162	**146,832**	293,665	587,330	1174,66
Re♯ Mib	77,7817	155,563	311,127	622,254	1244,51
Mi	**82,4069**	164,814	**329,628**	659,255	1318,51
Fa	87,3071	174,614	349,228	698,456	1396,91
Fa♯ Solb	92,4986	184,997	369,994	739,989	1479,98
Sol	97,9989	**195,998**	391,995	783,991	1567,98
Sol♯ Lab	103,026	207,652	415,305	830,609	1661,22
La	**110,000**	220,000	440,000	880,000	1760,00
La♯ Sib	116,541	233,082	466,164	932,328	1864,66
Si	123,471	**246,949**	493,883	987,767	1975,53

Réponse impulsionnelle du f iltre

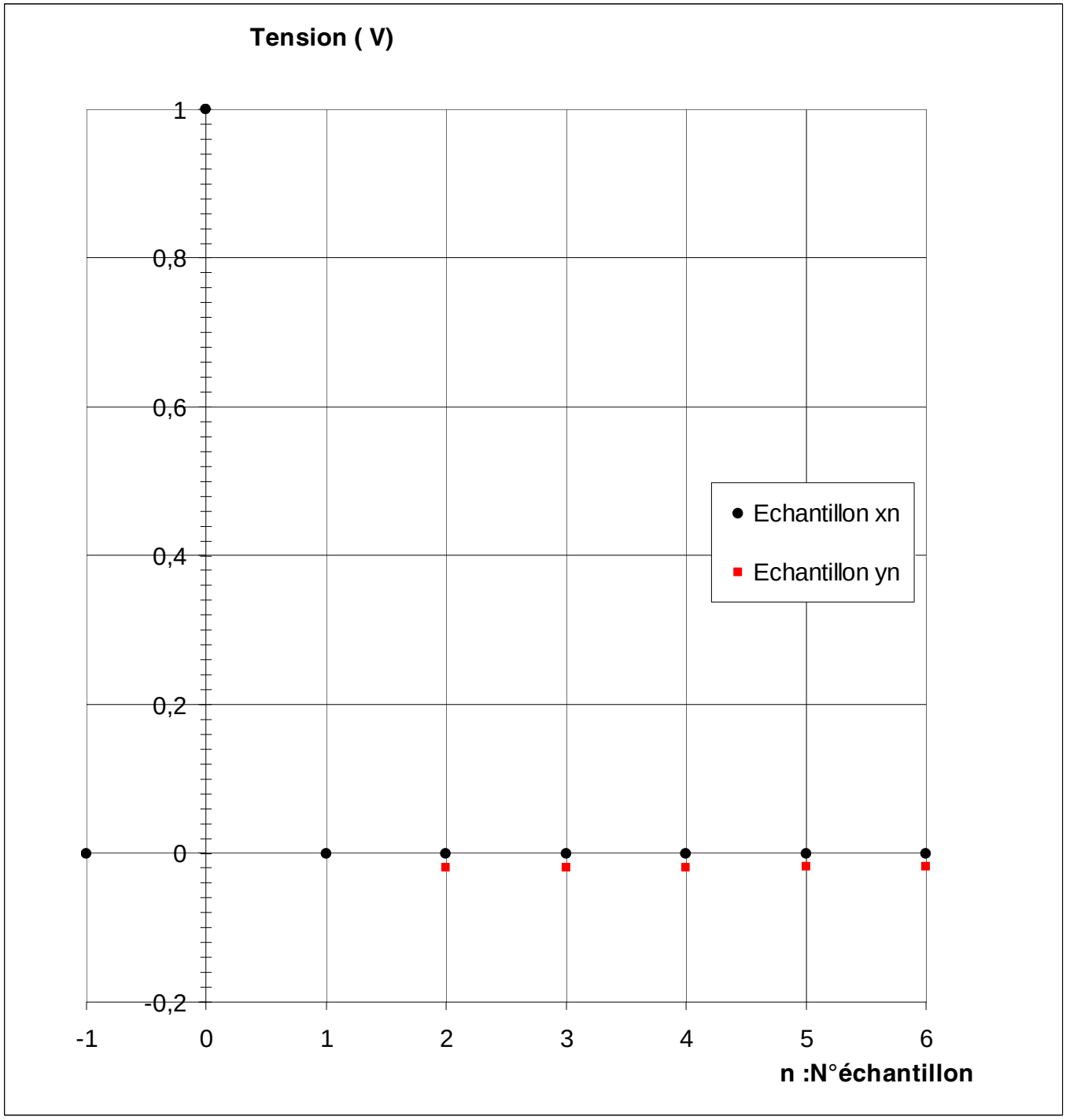
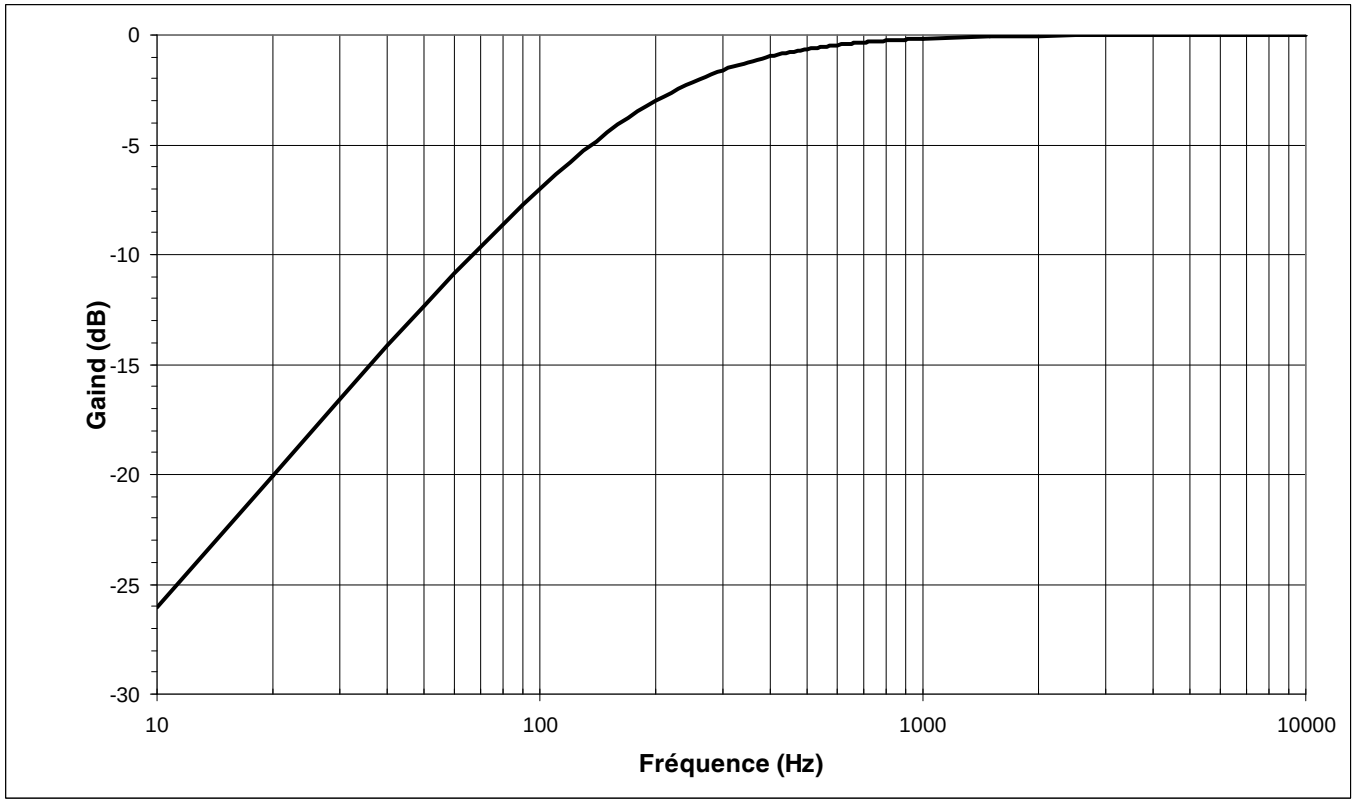
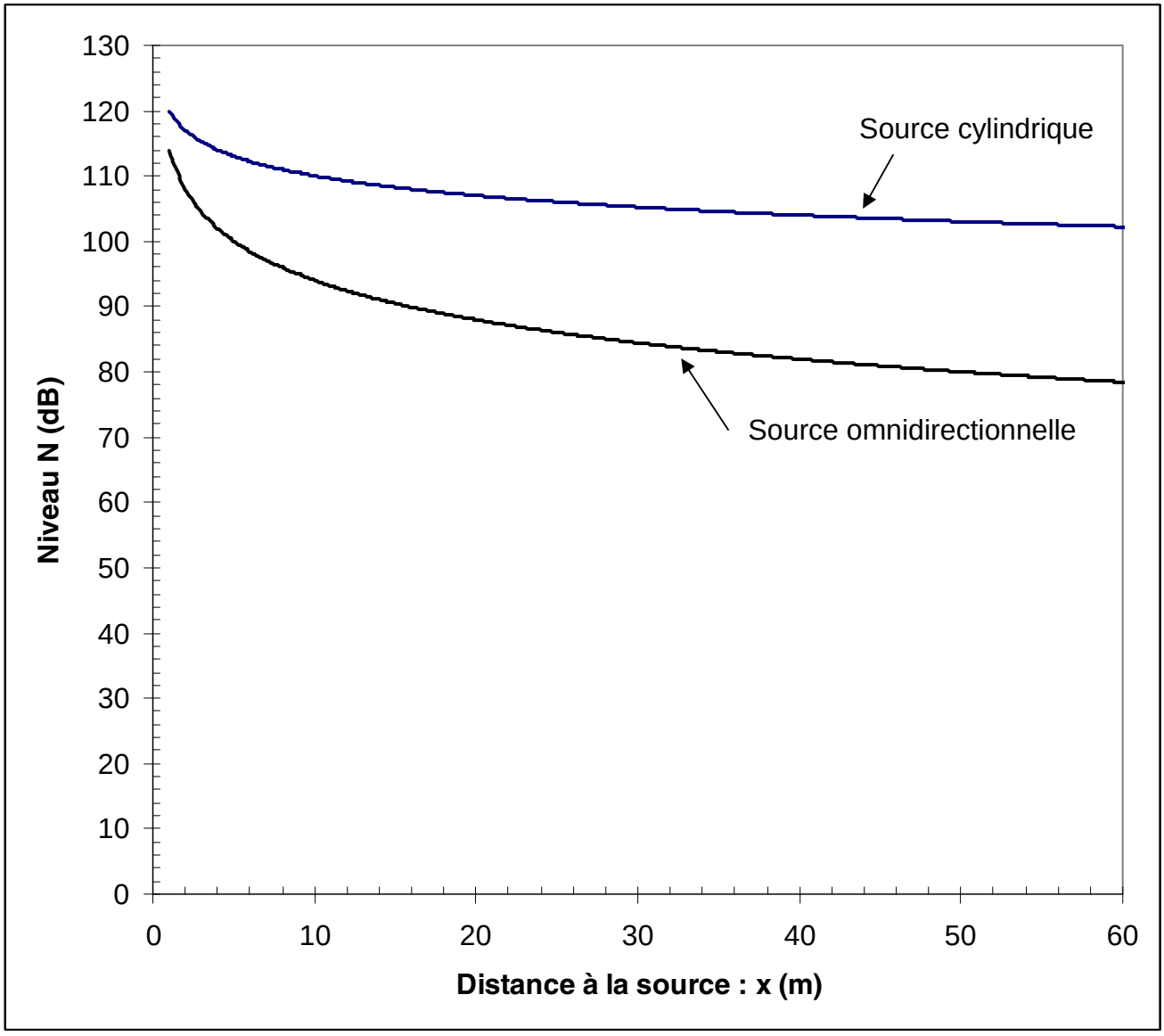


Tableau des séquences $\{x_n\}$ et $\{y_n\}$

n :N°échantillon	-1	0	1	2	3	4	5	6
x_n	0	1	0	0	0	0	0	0
y_n	0			0,0196	0,0192	0,0188	0,0184	0,0181

Figure 1 : Courbe de gain du filtre




130
120
110
100
90
80
70
60
50
40
30
20
10
0
Niveau N (dB)
0
10
20
30
40
50
60
Distance à la source : x (m)
Source cylindrique
Source omnidirectionnelle