R V R ELETTRONICA AUD2MP1 Broadcast Systems User Manual

AUD2MP1
USER MANUAL
VOLUME1

Manufactured by R.V.R ELETTRONICA S.p.A. Italy CE
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4/11/2014	1.0	First Version	J. H. Berti
10/2/2015	1.	Hardware update	J. H. Berti
10/7/2015	1.	Hardware update	J. H. Berti

AUD2MP1 – User Manual
Version 1.2

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CE Declaration of Conformity
Hereby, R.V.R. Elettronica SpA, declares that this FM transmitter is in compliance with the essential requirements and other relevant provisions of
Directive 1999/5/EC.
DECLARATION OF CONFORMITY
We, the undersigned,

Manufacturer's Name:	R.V.R. Elettronica SpA
Manufacturer's Address:	Via del Fonditore 2/2c Zona Ind. Roveri 40138 Bologna Italy

Certify and declare under our sole responsibility that the product:

Product Description:	Digital/SCA/RDS/MPX/Analog S

when used for its intended purpose, is in compliance with the essential requirements and other relevant provisions of Directive 99/5/CE "R&TTE", and therefore carries the "CE" mark.
The conformity assessment procedure referred to in Article 10 and detailed in Annex III of Directive 99/5/EC has been followed.
The following harmonized standard has been applied:

Safety (3.1a):	EN 60215 (1997-10) + EN 60065 (2011-01)

The technical documentation is held at the location above, as required by the conformity assessment procedure.
Bologna, Italy, 20/06/2013

Contents

Technical Description

			AUD2MP1	
Parameters	*Conditions*	*U.M.*	*Value*	*Notes*
GENERA	LS			
Phisical Dimensions		mm.	436 x 41 x 239	W x H x D
Overall Dimensions			483 x 44 x 252,6	W x H x D complete with 1 9” panel

Weight		Kg.	2	complete with 19” panel
Operating Temperature		°C	from -10 to +50	
Operating Humidity		%	95% noncondensing	
INPUTS *				
Left & Right	Connector		XLR (female)	
	Impedance	Ohm	600 (10k on request)	balanced
	Channels loss	dBm	6	
	Bandwidth	Hz	From DC to 20k	
MPX RDS SCA1 SCA2	Connector		BNC	
	Impedance	Ohm	10k	unbalanced
	Channels loss	dBm	6	
	Bandwidth	Hz	From DC to 100k	
AES/EBU	Connector		XLR (female)	
	Impedance	Ohm	110	balanced

OUTPUTS *				
Left & Right	Connector		2x XLR (male)	
	Impedance	Ohm	600 (10k on request)	balanced
	Channels loss	dBm	6	
	Bandwidth	Hz	From DC to 20k	
MPX RDS SCA1 SCA2	Connector		2x BNC	
	Impedance	Ohm	10k	unbalanced
	Channels loss	dBm	6	
	Bandwidth	Hz	From DC to 100k	
AES/EBU	Connector		2x XLR (male)	
	Impedance	Ohm	110	balanced
	Insertion loss	dB	6	

*: the input and output configurations can be customized

IMPORTANT

 The symbol of lightning inside a triangle placed on the product evidences the operations for which is necessary to give it full attention to avoid the risk of electric shocks.

 The symbol of an exclamation mark inside a triangle placed on the product, informs the user about the presence of instructions inside the manual that accompanies the equipment, important for the efficacy and maintenance (repairs).

Preliminary Instructions

General Warnings

This equipment should only be operated, installed, and maintained by “trained” or “qualified” personnel who are familiar with the risks involved in working on electric and electronic circuits. “Trained” means personnel who have technical knowledge of equipment operation and who are responsible for their own safety and that of other unqualified personnel placed under their supervision when working on the equipment. “Qualified” means personnel who are trained in and experienced with equipment operation and who are responsible for their own safety and that of other unqualified personnel placed under their supervision when working on the equipment.

 **WARNING:** Residual voltage may be present inside the equipment even when the ON/OFF switch is set to Off. Before servicing the equipment, disconnect the power cord or switch off the main power panel and make sure the safety earth connection is connected. Some service situations may require inspecting the equipment with live circuits. Only trained and qualified personnel may work on the equipment live and shall be assisted by a trained person who shall keep ready to disconnect the power supply at needed.
R.V.R. Elettronica S.p.A. shall not be liable for injury to persons or damage to property resulting from improper use or operation by trained/untrained and qualified/unqualified persons.

 **WARNING:** The equipment is not water resistant. Any water entering the enclosure might impair proper operation. To prevent the risk of electrical shock or fire, do not expose this equipment to rain, dripping or moisture. Please observe local codes and fire prevention rules when installing and operating this equipment.

 **WARNING:** This equipment contains exposed live parts involving an electrical shock hazard. Always disconnect the power supply before removing any covers or other parts of the equipment.
Ventilation slits and holes are provided to ensure reliable operation and prevent overheating; do not obstruct or cover these slits. Do not obstruct the ventilation slits under any circumstances. The product must not be incorporated in a rack unless adequate ventilation is provided or the manufacturer’s instructions are followed closely.

 **WARNING:** This equipment can radiate radio frequency energy and, if not installed in compliance with manual instructions and applicable regulations, may cause interference with radio communications.

 **WARNING:** This equipment is fitted with earth connections both in the power cord and for the chassis. Make sure both are properly connected.
Operation of this equipment in a residential area may cause radio interference, in which case the user may be required to take adequate measures.
The specifications and data contained herein are provided for information only and are subject to changes without prior notice. R.V.R. Elettronica S.p.A. disclaims all warranties, express or implied.While R.V.R. Elettronica S.p.A. attempts to provide accurate information, it cannot accept responsibility or liability for any errors or inaccuracies in this manual, including the products and the software described herein. R.V.R. Elettronica S.p.A. reserves the right to make changes to equipment design and/or specifications and to this manual at any time without prior notice.

- Notice concerning product intended purpose and use limitations.

This product is a radio transmitter suitable for frequency modulation audio radio broadcasting. Its operating frequencies are not harmonized in designated user countries. B e f o reop operating his equipment, the user must obtain a license to use the radio spectrum from the competent authority in the designated user country. Operating frequency, transmitter power, and other characteristics of the transmission system are subject to restrictions as specified in the license.

Warranty

La R.V.R. Elettronica S.p.A. warrants this product to be free from defects in workmanship and its proper operation subject to the limitations set forth in the supplied Terms and Conditions. Please read the Terms and Conditions carefully, as the purchase of the product or acceptance of the order acknowledgment implies acceptance of the Terms and Conditions. For the latest updated terms and conditions, please visit our website at **WWW.RVR.IT**. The website may be modified, removed, or updated for any reason whatsoever without prior notice. The warranty will become null and void in the event the product enclosure is opened, the product is physically damaged, is repaired by unauthorized persons, or is used for purposes other than its intended use, as well as in the event of improper use, unauthorized changes or neglect. In the event a defect is found, follow this procedure:

1. Contact the seller or distributor who sold the equipment; provide a description of the problem or malfunction in the event a quick fix is available.
   Sellers and Distributors can provide the necessary information to troubleshoot the most frequently encountered problems. Normally, Sellers and Distributors can offer a faster repair service than the Manufacturer would. Please note that Sellers can pinpoint problems due to the wrong installation.
2. If your Seller cannot help you, contact R.V.R. Elettronica S.p.A. and describe the problem; if our staff deems it appropriate, you will receive authorization to return the equipment along with suitable instructions;
3. When you have received the authorization, you may return the unit. Pack the unit carefully before shipment; use the original packaging whenever possible and seal the package perfectly. The customer bears all risks of loss (i.e., R.V.R. shall not be liable for loss or damage) until the package reaches the R.V.R. factory. For this reason, we recommend insuring the goods for their full value. Returns must be sent on a C.I.F. basis (PREPAID) to the address stated on the authorization as specified by the R.V.R. Service Manager.
    Units returned without a return authorization may be rejected and sent back to the sender.
4. Be sure to include a detailed report mentioning all problems you have found and a copy of your original invoice (to show when the warranty period began) with the shipment.
   Please send spare and warranty replacement parts orders to the address provided below. Make sure to specify equipment model and serial number, as well as part description and quantity.

R.V.R. Elettronica S.p.A.
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First Aid

All personnel engaged in equipment installation, operation and maintenance must be familiar with first aid procedures and routines.

3.1 Electric shock treatment

3.1.1 If the victim is unconscious

Follow the first aid procedures outlined below.

- Lay the victim down on his/her back on a firm surface.
- the neck and tilt the head backward to free the airway system (Figure 1).

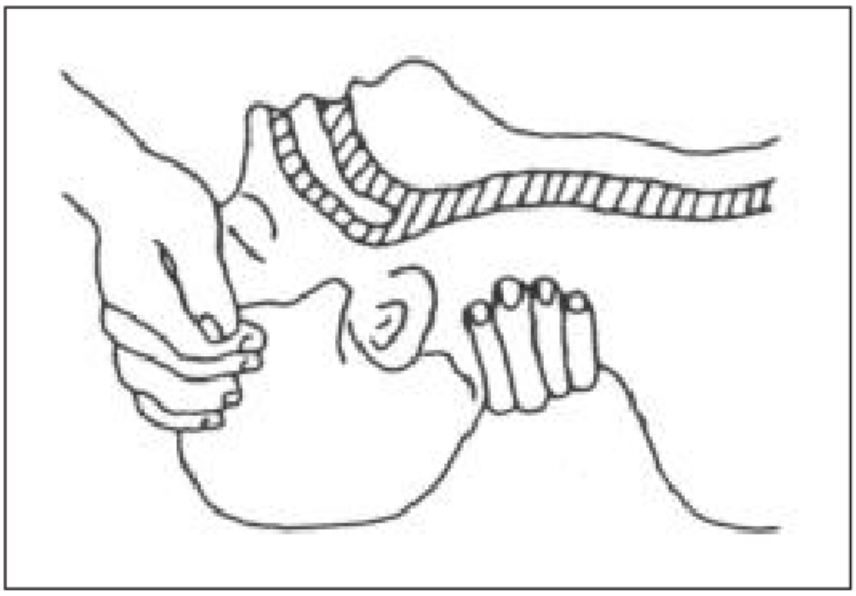

Figure 1

- If needed, open the victim's mouth and check for breathing.
- If there is no breathing, start artificial respiration without delay (Figure 2) as follows: tilt the head backward, pinch the nostrils, seal your mouth around the victim's mouth and give four fast rescue breaths.

Figure 2

- Check for the heartbeat (Figure 3); if there is no heartbeat, begin chest compressions immediately (Figure 4) placing your hands in the center of the victim's chest (Figure 5).

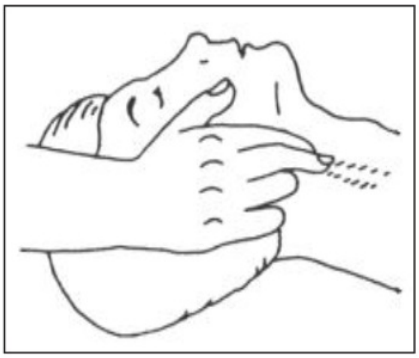

Figure 3

Figure 4

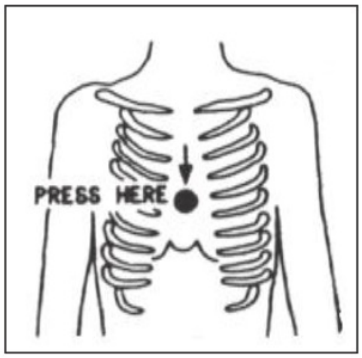

Figure 5

- One rescuer: give 2 quick rescue breaths after every 15 compressions.
- Two rescuers: one rescue breath after every 5 compressions.

General Description

The AUD2MP1 is a passive 2-way audio distributor, Digital/MPX+RDS+SCA1+SCA2/ Analog stereo or mono, working in a wide range of levels.
The AUD2MP1 is designed to be contained in a 19” rack box of 1HE.

4.1 Unpacking

The package contains:

- 1 AUD2MP1
- 1 Quick Reference
- 1 CD Manual

The following accessories are also available from Your R.V.R. Dealer:

- Accessories, spare parts, and cables

4.2 Features

The AUD2MP1 audio distributor has been designed to be integrated in radio transmission systems with dual exciter, or in any case in all those applications where there is need to divide the audio sources of different nature into two outputs each. Different configurations are available depending on the type and number of signals to distribute.
It is totally passive and any power source does not require, this solution has been adopted to provide maximum reliability and to not waste the redundancy offered by the dual output, by using of power systems that may generate failures to both channels.
The distributor has seven distinct sections: the first two suitable for analog audio (L & R), four that can divide an unbalanced MPX/RDS/SCA1/SCA2 signal, and the last able to split the AES-EBU digital signal.
In detail, the AUD2MP1 has separate Left and Right analog audio inputs that accept mono signals from DC to over 20 kHz, the signal is split and sent to two balanced outputs (XLR) with a level loss of about 6dB.
The AES-EBU digital input is a balanced type (XLR) with a transformer and it has an input impedance of 110 ohms. The signal of this input is split and sent to two balanced outputs (XLR).
The MPX/RDS/SCA1/SCA2 unbalanced input (BNC) is able to split an MPX audio signal on two unbalanced outputs (BNC), it accepts audio signals from DC to 100KHz.
The outputs of this section are calibrated to be connected to outputs with a typical impedance of 10KOhm.
The insertion loss of the two outputs is typical of 6dB. The distributor AUD2MP1 does not require any routine maintenance.

The AUD2MP1 audio distributor comes in different configurations summarized below:

- Version V1: 2-Way passive audio splitter, digital(AES-EBU)/MPX/Analog(L&R) stereo or mono.
- Version V2: 2-Way passive audio splitter, digital(AES-EBU)/MPX+RDS/ Analog(L&R) stereo or mono.
- Version V3: 2-Way passive audio splitter, digital(AES-EBU)/MPX+RDS+SCA1/ Analog(L&R) stereo or mono.
- Version V4: 2-Way passive audio splitter, digital(AES-EBU)/ MPX+RDS+SCA1+SCA2/Analog(L&R) stereo or mono.

4.3 Rear Panel Description

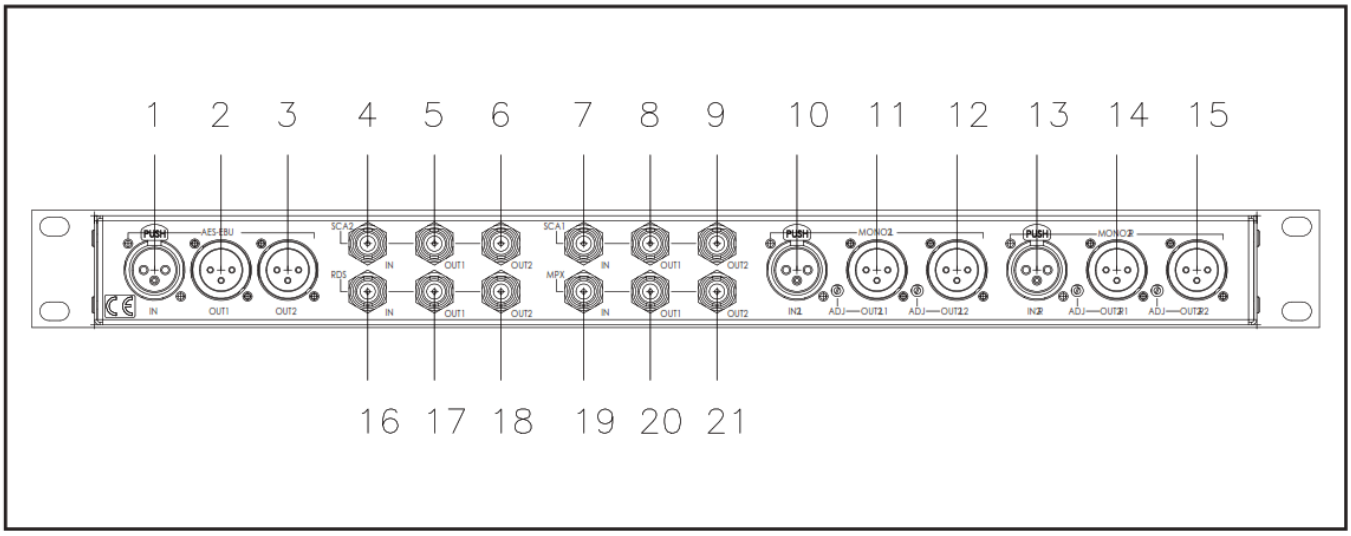

Figure 4.1 – AUD2MP1/V4 configuration L&R, MONO, MPX, AES/EBU, SCA1, SCA2, RDS

[1] AES-EBU IN [2] AES-EBU OUT 1 [3] AES-EBU OUT 2 [4] SCA2 IN [5] SCA2 OUT 1 [6] SCA2 OUT 2 [8] SCA1 OUT 1 [7] SCA1 IN [9] SCA1 OUT 2 [10] MONO INPUT L [11] MONO OUT 1 L 1 [12] MONO OUT 1 R1 [13] MONO INPUT R [14] MONO OUT 2 L 2 [15] MONO OUT 2 R2 [16] RDS IN [17] RDS OUT 1 [18] RDS OUT 2 [19] MPX IN [20] MPX OUT 1 [21] MPX OUT 2	XLR female connector, balanced AES/EBU digital audio input. XLR male connector, balanced AES/EBU digital audio output 1. XLR male connector, balanced AES/EBU digital audio output 2. BNC female connector, unbalanced SCA2 analog input (not available on AUD2MP1/V1, AUD2MP1/V2, and AUD2MP1/ V3). BNC female connector, unbalanced SCA2 analog output 1 (not available on AUD2MP1/V1, AUD2MP1/V2 and AUD2MP1/V3). BNC female connector, unbalanced SCA2 analog output 2 (not available on AUD2MP1/V1, AUD2MP1/V2, and AUD2MP1/V3). BNC female connector, unbalanced SCA1 analog input (not available on AUD2MP1/V1 and AUD2MP1/V2). BNC female connector, unbalanced SCA1 analog output 1 (not available on AUD2MP1/V1 and AUD2MP1/V2). BNC female connector, unbalanced SCA1 analog output 2 (not available on AUD2MP1/V1 and AUD2MP1/V2). XLR female connector, balanced Left-Mono audio input. XLR male connector, balanced Left-Mono audio output 1 with level adjustment trimmer. XLR male connector, balanced Right audio output 1 with level adjustment trimmer. XLR female connector, balanced Right audio input. XLR male connector, balanced Left-Mono audio output 2 with level adjustment trimmer. XLR male connector, balanced Right audio output 2 with level adjustment trimmer. BNC female connector, unbalanced Radio Data System input (not available on AUD2MP1/V1). BNC female connector, unbalanced Radio Data System output 1 (not available on AUD2MP1/V1). BNC female connector, unbalanced Radio Data System output 2 (not available on AUD2MP1/V1). BNC female connector, unbalanced MPX input. BNC female connector, unbalanced MPX output 1. BNC female connector, unbalanced MPX output 2.

4.4 Connector Pinouts

4.4.1 AES/EBU and Left (MONO) & Right

Type: XLR Male

1. GND
2. Positive
3. Negative

4.4.2 AES/EBU and Left (MONO) & Right
Type: XLR Female

1. GND
2. Positive
3. Negative

Quick guide for installation and use

This section provides a step-by-step description of equipment installation and configuration procedure. Follow these procedures closely upon first power-on and each time any change is made to the general configuration, such as when a new transmission station is added or the equipment is replaced.
Once the desired configuration has been set up, no more settings are required for normal operation; at each power-up (even after an accidental shutdown), the equipment defaults to the parameters set during the initial configuration procedure.
The topics covered in this section are discussed at greater length in the next sections, with detailed descriptions of all hardware and firmware features and capabilities. Please see the relevant sections for additional details.

☞ **IMPORTANT:** When configuring and testing the transmitter in which the equipment is integrated, be sure to have the Final Test Table supplied with the equipment ready at hand throughout the whole procedure; the Final Test Table lists all operating parameters as a set and tested at the factory.

5.1 Preparation

5.1.1 Preliminary checks

Unpack the audio device and immediately inspect it for transport damage. Ensure that all connectors are in perfect condition.
Connect all audio inputs required from the audio sources available.
Connect all audio outputs to the audio devices that need them.

Working Principles

A schematic view of the modules and connections making up the AUD2MP1 is shown in the following figures.

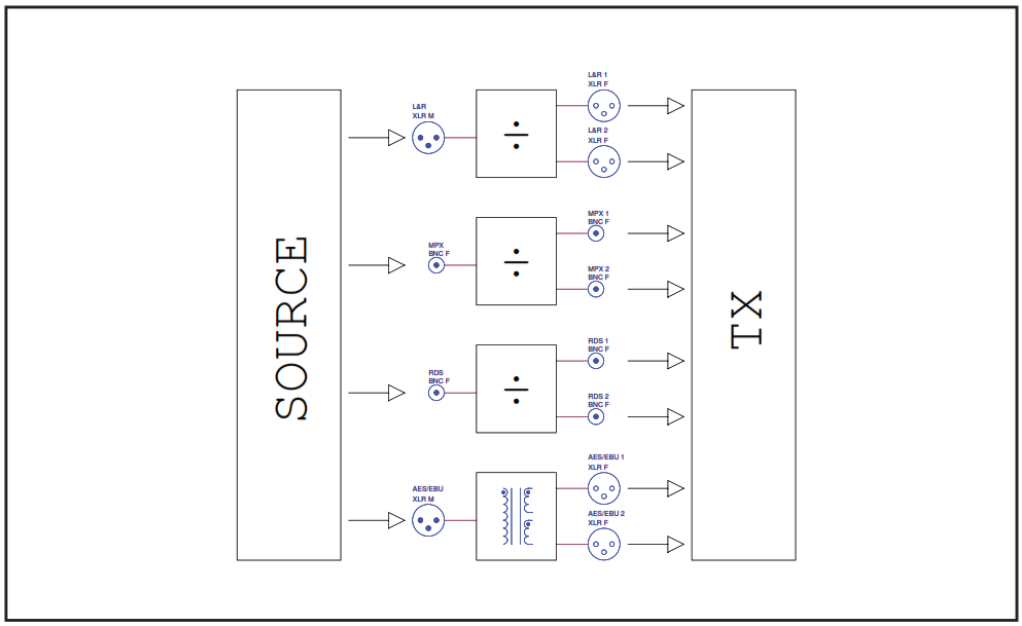

Figure 6.1 – AUD2MP1/V1 configuration L&R, MONO, MPX, AES/EBU

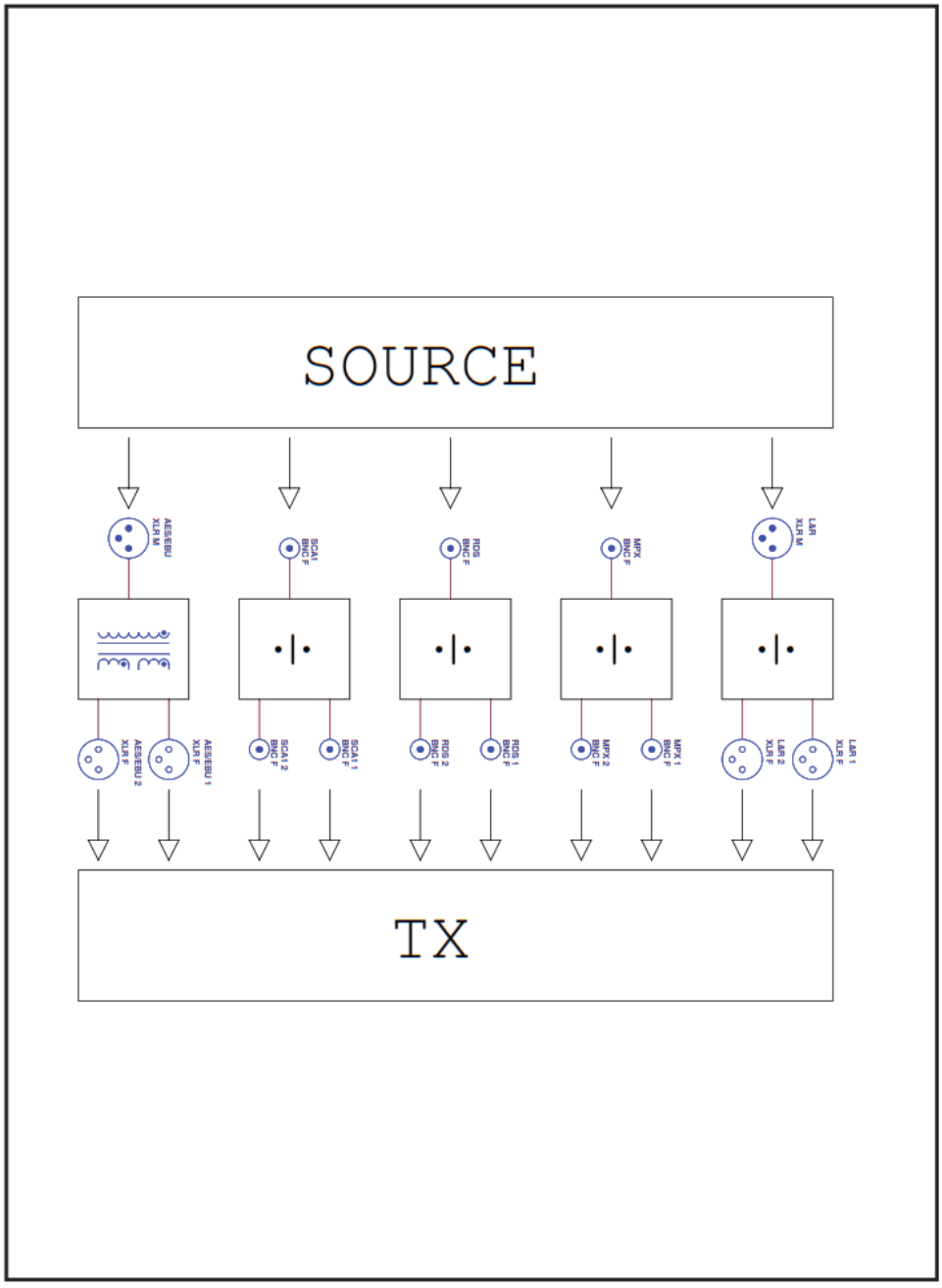

Figure 6.2 – AUD2MP1/V2 configuration L&R, MONO, MPX , AES/EBU, RDS

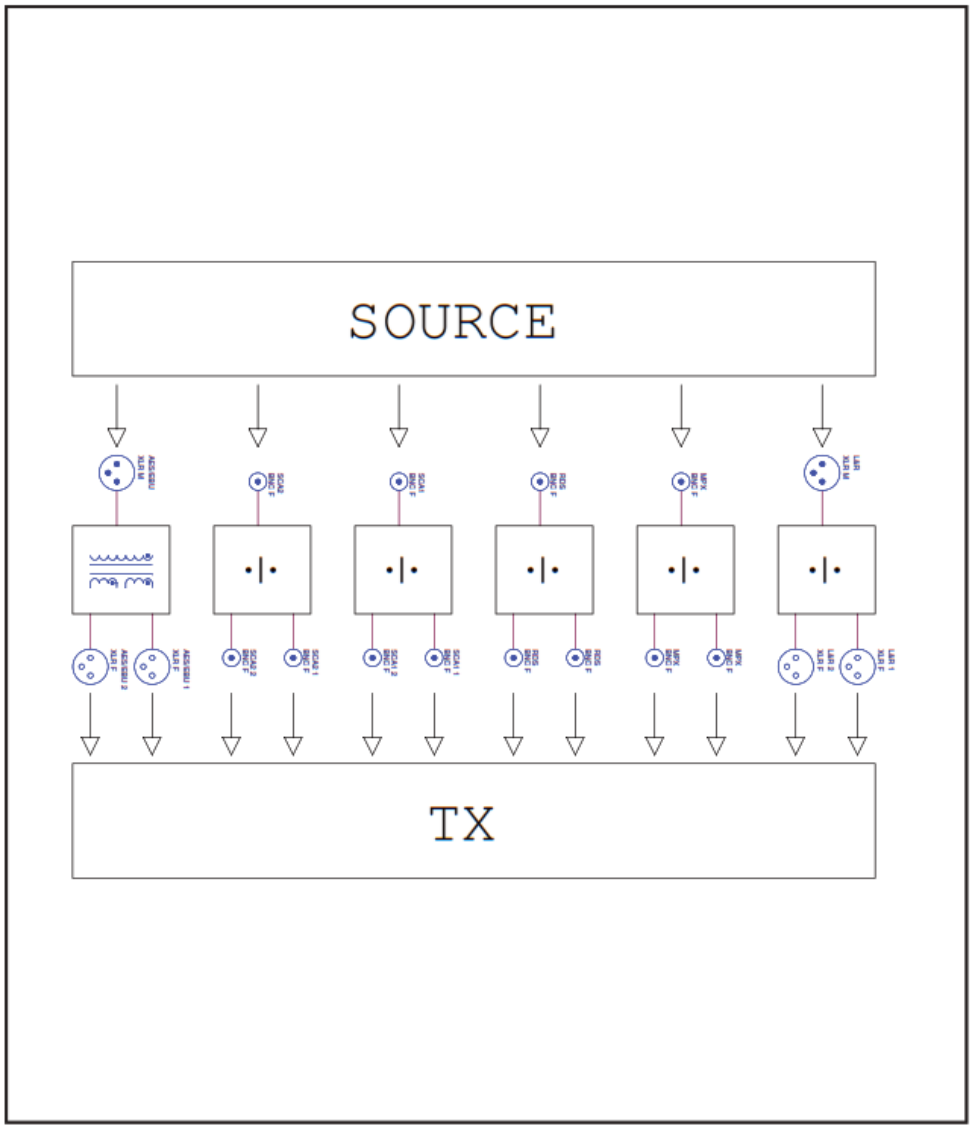

Figure 6.4 – AUD2MP1/V4 configuration L&R, MONO, MPX, AES/EBU, SCA1, SCA2, RDS

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·web: http://www.rvr.it
ISO 9001:2000 certified since 2000

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Rev. 1.2 – 10/07/15

Documents / Resources

	R V R ELETTRONICA AUD2MP1 Broadcast Systems [pdf] User Manual AUD2MP1, Broadcast Systems, AUD2MP1 Broadcast Systems, Broadcast, Systems