



AEV DUAL SWITCH

Programable Audio Switcher



Guarantee

The equipment is warranted for a period of 2 years from the date of invoice (ex-works). The warranty does not cover faults provoked by carelessness, natural causes and parts subject to wear. In addition, the cost of shipment is not covered. The warranty will be voided if the equipment is mishandled.

Technical Support

If you require technical support, contact AEV SERVICE giving a clear and concise account of your specific problem. Quote the serial number of your equipment by referring to the AEV nameplate attached to the equipment itself as this is the most important piece of information to be provided.

Telephone: +39 051 6630904 Fax: +39 051 893605

Factory Service and Repairs

If problems arise while the equipment is being installed, consult this manual and check that the installation is being carried out properly. If the problems still cannot be solved, call the AEV SERVICE Department for further information. If the problem is a minor one we can a telephone call will probably suffice. If, on the other hand, the equipment is to be shipped to AEV for service or repairs.

Shipping Instruction

When shipping the equipment to AEV, use the original package in order to be certain that it will be fully protected during handling. If you need the original package, call us for a new one.

If you ship the equipment in a different packing container, take care to provide a double package by interposing padding material between the two containers in order to fully protect the equipment during shipment. The package should be marked "FRAGILE" in red.

Remember that the RMA number must be clearly visible on the package. If it is not, the equipment will not be accepted.

IMPORTANT: Carefully read this paragraph as it contains important instructions concerning operator safety and directions regarding the installation, operation and maintenance of the equipment.

Failure to observe the safety instructions and information given in this manual **constitutes an infringement of the safety rules and design specifications provided for this piece of equipment.**

AEV Broadcast Srl declines all responsibility if any one of the safety rules given here in is not observed.

AEV Broadcast Srl declines all responsibility if the end-user resells the product.

The equipment is to be used by people capable of operating it in a trouble-free manner and **it is assumed that they are aware of the following safety rules.**

- Keep this manual with the utmost care and close at hand so that it can be consulted whenever needed
- After unpacking the equipment, check it for condition.
- Avoid banging the equipment.
- The packing material (plastic bags, polystyrene, nails, etc.) must never be left within the reach of the children, as **these items are potential sources of danger.**
- Do not use the equipment in places where the temperature is not within the recommended range, as specified by the manufacturer.
- Before connecting the equipment, make sure the nameplate specifications correspond to the mains electricity supply (the nameplate is located on the equipment enclosure).
- Do not remove the sticker from the equipment as it contains important specifications and the relevant serial number.
- To join the equipment to the mains supply, use the power cord purchased with the equipment.
- The equipment must be used only for the purpose it was designed for.
- Abuse or misuse of the equipment is **extremely dangerous** for people, pets and property. The manufacturer declines all responsibility for damage and injury resulting from **improper use and mishandling.**
- Certain basic safety rules must be observed when using electrical equipment, in particular: -
Never touch the equipment with wet and/or damp hands or other parts of the body.

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- Keep the equipment away from drops of water or sprinkling systems.
- Never use the equipment near high heat sources or explosive material.
- Do not introduce any extraneous matter into the equipment.
- Do not allow children or untrained people to use the equipment.
- Before cleaning or servicing the equipment outside, disconnect it from the supply and wait at least 2 seconds before working on it, as recommended by current safety regulations.
- In the event of faults and/or improper operation, turn off the equipment, shut off the electrical power and call your dealer.
- Do not attempt to make repairs and/or adjustments when covers/guards or circuit boards are to be removed.
- Blown fuses inside the power supply indicate that there may be a fault in the power supply itself. The fuses must be replaced by qualified and authorised persons. It is advisable to call your nearest dealer.
- Call your dealer for any repairs and be certain original spare parts are used.

Failure to observe this rule may adversely affect the safety level of your equipment.

- The equipment is to be connected to the mains supply and provided with adequate and efficient earth conductors.
- The electrical wiring must be done in compliance with current electrical codes CEI 64-8 "Electrical specification for domestic buildings".
- When installing, leave a clearance of at least 1 cm around the equipment to allow air to pass freely.

NOTE. This piece of equipment has been manufactured to the highest standards of workmanship. It must be used properly and serviced as recommended to ensure long-term dependable operation.

The installation must be done in order to be able to guarantee an easy access to the cable of feeding.

The device of dissection of the equipment is the cable of feeding, so it must be unconnected from the equipment every time it is necessary to do any type of maintenance.



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Introduction

Dual Switch is an audio switch has two distinct sections: one for the management and control of two stereo signals and another for two MPX signals.

Each section has two inputs and one output.

- The Stereo section for switching between a stereo source (MAIN Left + Right) and a secondary source (IN Left + Right).
- The MPX section for switching between a primary source and a secondary source MPX MPX such as, for example, a network of bridges receiving terrestrial radio emergency, causing it possible alarms, and performing switching of emergency.

Use as a Supervisor is ideal to allow, in remote locations, the management of signals of different backbones such as between the satellite and a network of bridges terrestrial radio by managing alarms and performing switching of emergency.

General details

Dual Switch is extremely easy to program using the display and the encoder on the front panel. Dual Switch is equipped with a system of By-pass passive (Relay) able to "bypass" directly to the control circuit and switching, connecting the main entrance (MAIN) at the output (OUT) in the event of failure of the device extended or in case of power failure (unless this option Back-Up). Dual Switch is equipped with an auxiliary output stereo, on RCA pin connectors to allow any connection to recording devices and a monitor output MPX that replicates the output resulting from switching MPX.

Dual Switch is able to accept external commands normally closed or normally open, inputs are optically isolated

Dual Switch, trough the Logic I/O port, provides commands optocoupled output that repeat the status of the switches and the internal audio Stereo MPX.

The state of the photocoupler output is normally open,

M	S	STE	M	S	MPX
█	█	MAIN	█	█	MAIN
█	█	STUDI	█	█	SUPER
█	█	DELAY	█	█	DELAY
█	█	0 s	█	█	0 s
█	█	ST IN	█	█	PILOT
█	█	OPEN	█	█	-20 dB
█	█	MPXIN	█	█	RDS
█	█	OPEN	█	█	NO RDS

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Description



1 TFT color graphic display for viewing all the states of the machine, audio level input and to program the configuration parameters.

2 encoder knob

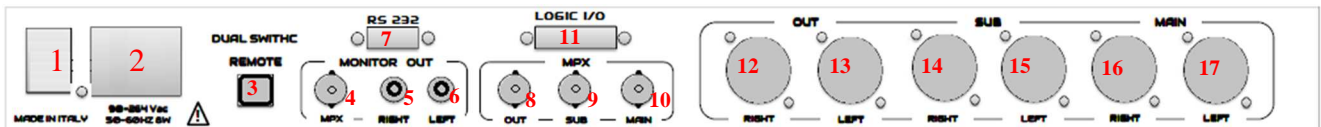
Rear panel

Stereo section: is equipped with XLR balanced input primary, secondary and output.

MPX section: is equipped with BNC type connectors at the main, secondary and output

Monitor section: monitor BNC connector MPX and pair RCA.

Dual Switch, in the model Stereo, allows to enable a control that provides an output (OUT) the same audio level of the selected input (MAIN or SUB).



- 1 Power switch.
- 2 socket for the power supply VDE
- 3 USB connector remote
- 4 BNC monitor MPX out
- 5 RCA Stereo monitor out
- 6 RCA Stereo monitor out
- 7 DB9 serial port RS232
- 8 BNC MPX signal out
- 9 BNC MPX signal Sub input
- 10 BNC MPX signal Main input
- 11 DB15 Logic I / O connector 15-pin contacts opto isolated input / output.
- 12 XLR Right output
- 13 XLR Left output
- 14 XLR Sub Right input
- 15 XLR Sub Left input

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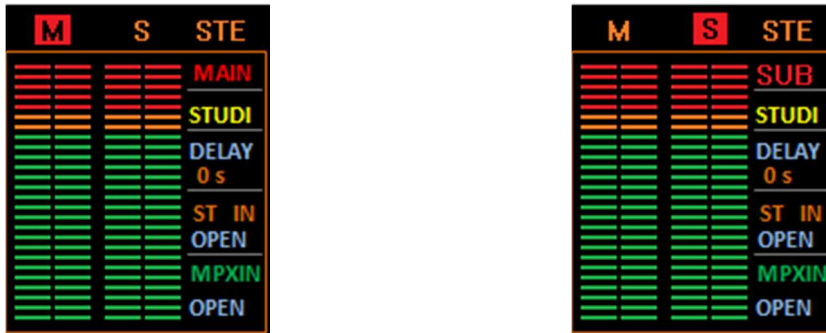
16 XLR Main Right input

17 XLR Main Left input

Display functions

Stereo section

At the top of the menu, the input signal is enabled in output is highlighted with a box on red background,



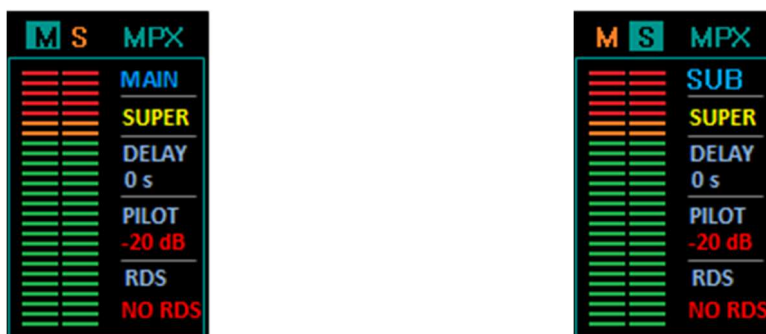
In the lower left, in correspondence to the symbols that identify the input signals (**M** = Main, **S** = Sub), shows the levels of the Stereo input channels.

In the bottom right, starting from the top downwards, are displayed:

- audio signal present at the output (MAIN or SUB)
- Management mode output (SUPER, STUDIO, MAIN, SUB)
- Time to wait before switching from MAIN to SUB
- Contact status which input drive signal switching Stereo

MPX section

At the top of the menu, the input signal is enabled in output is highlighted with a box on green background,



In the lower left, in correspondence to the symbols that identify the input signals (M = main, sub = S), displays the channel levels MPX input.

In the bottom right, starting from the top downwards, are displayed:

- audio signal present at the output (MAIN or SUB)
- Management mode output (SUPER, STUDIO, MAIN, SUB)
- Signal Level Pilot 19KHz

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- Recognition of the RDS signal and its PI code (if any)

Setup functions

You access the configuration by pressing the jog dial on the right side of the display, the various parameters are displayed in succession by turning the knob and the change is enabled by pressing the jog dial in the mailorder parameter to change.

The parameters (sub-menus) are displayed in sequence:

- **STE SW**: mode switching Stereo section
- **MPX SW**: mode switching MPX section
- **STE DELAY to SUB**: Stereo section, delay time to switch from Main to Sub (0 - 255 sec)
- **STE DELAY to MAIN**: Stereo section, delay time to switch from Sub to Main (0 - 255 sec)
- **STE BLANK THR**: Stereo section, the threshold of switching level
- **MPX DELAY to SUB**: MPX section, delay time to switch from Main to Sub (0 - 255 sec)
- **MPX DELAY to MAIN**: MPX section, delay time to switch from Sub to Main (0 - 255 sec)
- **MPX BLANK THR**: MPX section, the threshold of switching level
- **MPX PILOT LEV**: MPX section, Pilot signal level 19KHz reference
- **MPX RDS ALARM**: MPX section, selection of type of alarm signal RDS
- **MATCH PI**: MPX section, to edit and view the code PI reference

Description of the parameters

STE SW; pressing the jog dial at this menu enabling a change of mode switching section Stereo. In succession, turning the knob, you see entries:

- **SUPER**: The priority input in the output is the MAIN, the level control signal is applied on the MAIN, switching on the SUB can occur in case of lack of signal MAIN or lowering of the level of the same below the threshold THR reference for a time over one established. Restoring the MAIN signal input or its level above the threshold THR, for the minimum time edited, the output will switch on the input MAIN. in this mode is the primary external command applied via contact ST IN port Logic I / O through which one can impose the switching input SUB regardless of the level of the signal MAIN.
- **STUDI**: The input signal at the output is determined by the state of the contact ST IN port Logic I / O, open contact = MAIN, SUB = closed contact. The control of the signal level, in this case, is applied to the SUB, in case of no signal or less than the predetermined threshold THR, the end of the observation time imposed, the output is switched to the MAIN regardless of the state contact IN ST.
- **MAIN**; manual setting and fixed input MAIN output, control the level of the signal shows the status of the alarm contact output port Logic I / O but does not cause switching. In this mode, the switch from MAIN to SUB can not be activated using the appropriate door contact Logic I / O.
- **SUB**; manual setting and fixed input SUB output, control the level of the signal shows the status of the alarm contact output port Logic I / O but does not cause switching. In this mode, the switching from SUB MAIN can not be activated using the appropriate door contact Logic I / O.

MPX SW; pressing the jog dial at this menu enabling a change of mode switching section MPX. In succession, turning the knob, you see entries:

- SUPER: the priority input output is the MAIN level control signal is applied on the MAIN switch on the SUB can occur as a result of the following controls (if active):

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- lack of signal MAIN or lowering of the level of the same below the threshold THR reference for a time over one established.
 - detection of a level of the 19 KHz pilot signal which differs by a value greater than or less than ± 1 dB than the set value
 - absence of RDS signal or inconsistent data of the it
 - detection of a PI code in the RDS signal, different from that set.
-
- Restoring the MAIN signal input or its level above the threshold THR, or one of the checks listed above, for the minimum time edited, the output will switch on the input MAIN. in this mode is the primary external command applied via contact ST IN port Logic I/O through which one can impose the switching input SUB regardless of the level of the signal MAIN.
 - **STUDI**: The input signal at the output is determined by the state of the contact ST IN port Logic I/O, open contact = MAIN, SUB = closed contact. The control of the signal level, in this case, is applied to the SUB, in case of no signal or less than the predetermined threshold THR, the end of the observation time imposed, the output is switched to the MAIN regardless of the state contact ST IN.
 - **MAIN**; manual setting and fixed input MAIN output, control the level of the signal shows the status of the alarm contact output port Logic I/O but does not cause switching. The switch from MAIN to SUB can not be activated by contact of dedicated Logic I/O port.
 - **SUB**; manual setting and fixed input SUB output, control the level of the signal shows the status of the alarm contact output port Logic I/O but does not cause switching. Switching from SUB MAIN can not be activated by contact of dedicated Logic I/O port.

STE DELAY to SUB; pressing the jog wheel, at this entry, to access setting of the observation time signal MAIN, beyond which, in SUPERVISOR mode (SUPER), with allame active, the output is switched on the SUB. The available range is from 0 to 255 seconds

STE DELAY to MAIN; pressing the jog wheel, at this entry, to access setting of the observation time of the signal level SUB, beyond which, in STUDIES mode, the output is switched on MAIN. The available range is from 0 to 255 seconds.

STE BLANK THR; pressing the jog wheel, at this entry, to access setting the threshold level of Stereo. The available range varies from -18 to -4 dB; OFF control is disabled.

MPX DELAY to SUB; pressing the jog wheel, at this entry, to access setting of the observation time signal MAIN, beyond which, in SUPERVISOR mode (SUPER), compared with alarm, the output is switched on the SUB. The available range is from 0 to 255 seconds

MPX DELAY to MAIN; pressing the jog wheel, at this entry, to access setting of the observation time of the signal level SUB, beyond which, in STUDIES mode, the output is switched on MAIN. The available range is from 0 to 255 seconds.

MPX BLANK THR; pressing the jog dial, at this entry, to access setting the threshold level of the stereo signal; . The available range varies from -18 to -4 dB; OFF control is disabled.

MPX PILOT LEV; pressing the jog wheel, at this entry, to access setting the threshold level of the pilot signal 19 KHz. The available range varies from -26 to -14 dB; OFF control is disabled.

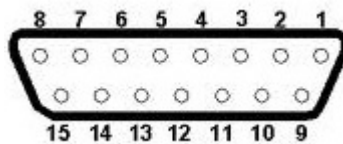
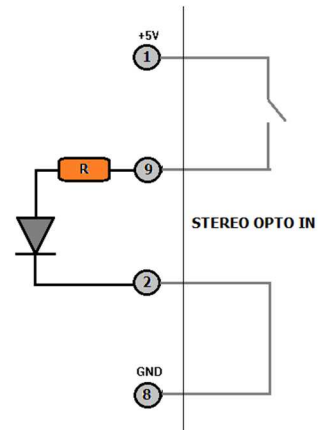
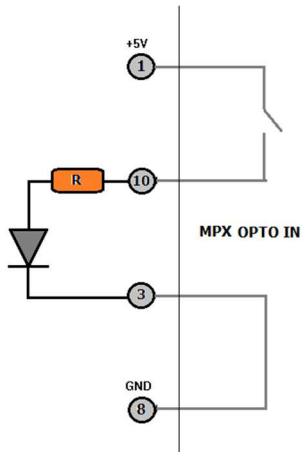
MPX RDS ALARM; pressing the jog wheel, at this item, you can then select the type of control activated the RDS signal :

- RDS S, Control of the RDS signal, data consistency in the RDS signal
- PI CHK, Control of the PI code contained in the RDS signal
- OFF, Disabling the control signal RDS

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MATCH PI; displays the PI code set for control, pressing the jog dial, at this item, you enable the writing of the PI code starting with the first character to the left, turning the knob you select the character and with an additional press of the jog proceed the storage and the selection will move to the next character.

Logic I/O port



Pin 2-9 :Opto 1 IN, switching control Stereo section

Pin 3-10 :Opto 2 IN, switching control MPX section

Pin 4-11 :Opto 1 OUT, state output Stereo section

Pin 5-12 :Opto 2 OUT, state output MPX section

Pin 6-13 :Opto 3 OUT, alarm level pilot signal 19 KHz

Pin 7-14 :Opto 4 OUT, alarm segnal RDS

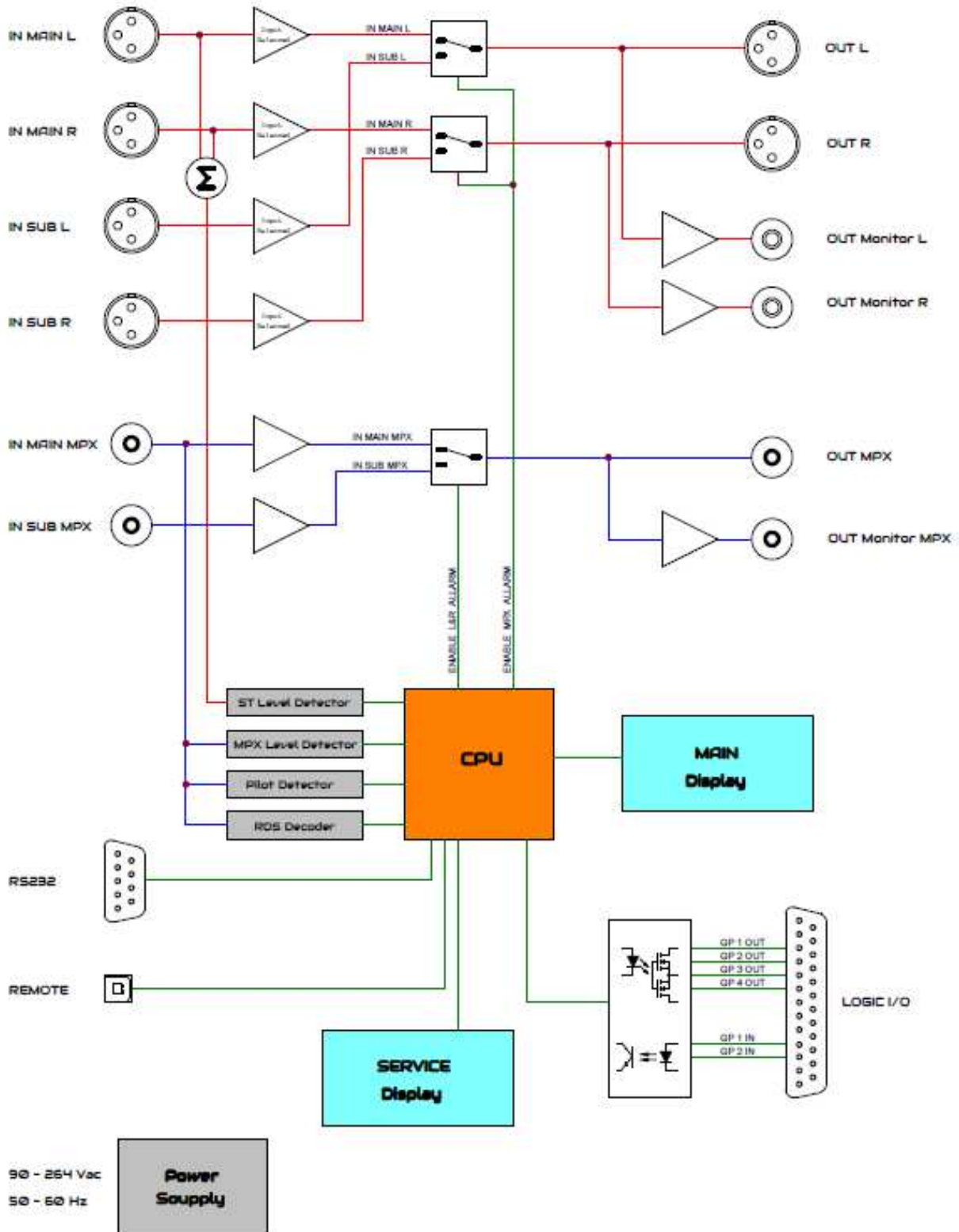
Pin 1: +5Vdc max I=50 mA

Pin 8-15: GND



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Block diagram



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Technical details

Inputs Stereo (Main, Sub)

Analog audio input configuration	Electronically balanced Left & Right
Input Impedance	10 K Ω
Common mode rejection	Greater than 50 dB (30 Hz 15 KHz)
Connectors	XLR Female

Output Stereo

Analog audio output configuration	Electronically balanced Left & Right
Output level	As Input Level in Transparent Mode,
Connectors	XLR Male

Inputs MPX (Main, Sub)

configuration	Unbalanced
Composite input level	0 dBu
Impedance	10 K Ω
Connector	BNC grounded to chassis

Output MPX

MPX Output configuration	Unbalanced
Composite output level	As Input Level in Transparent Mode
Connector	BNC grounded to chassis

Monitor Stereo Output

Output configuration	Unbalanced
Output level	As Input Level
Output Impedance	100 Ω
Connectors	PIN RCA

Monitor MPX Output

Output configuration	Unbalanced
Output level	As Input Level in Transparent Mode
Output Impedance	50 Ω
Connectors	BNC grounded to chassis

LOGIC INPUT

Configuration	Opto-coupled (with internally 330 Ω protection)
Typical Voltage input	5 Vdc (for 10 mA input)
Max Reverse Voltage	5 Vdc
Connector	DSUB 15 pole female

LOGIC OUTPUT

Configuration	Optic solid state relay
Max Voltage	50 Vac/dc
Max Current	100 mA
Connector	DSUB 15 pole female

RS232 SERIAL CONNECTION

Connector DSUB 9 pole female

USB SERIAL INTERFACE

Connector USB B

General Specifications

Stereo Separation degradation	< 1 dB
Distortion @ 1 KHz	< 0.01%
Signal to noise ratio	< 85 dB (CCIR)
Power requirement	90 - 264 V ~ 50 - 60 Hz
Consumption	4 W
Power supply	max power 8 W
Dimension	(WxHxD) 48,3 x 19,4 x 4,4 cm 1 rack unit
Weight	2,5 Kg. (5.5 Lbs)
Operating Temp.	0 ÷ 50° C.