Contents

Introduction

Thank you for purchasing the Broadcast Energya digital mixer, the result of the AEV team's vast experience.

We welcome all your suggestions to help us better develop and optimise our products.

Please send us your comments to the following e-mail address: service@aev.net. You can also visit our web site for detailed information on our new products at: http://www.aev.net.

Features

Audio inputs
24 channels:
4 transformer balanced Micro Inputs
4 AES/EBU Digital Inputs with 96 KHz SRC
16 electronically balanced Line Inputs

Faders
8 faders (100 mm) with A/B input selector

Input Configuration
Each input can be preset to operate with any faders (digital router)

A/ D converter on analog inputs
High quality 24 bit A/D converter

Inputs and Channels Functions

INPUTS FUNCTION

(All settings are independent for each input; once this preset has been effected, each input acquires these settings, including the Start-Stop functions)

- Assignment of name for each input
- Selection of input source
- Level setting
- Phantom Power supply (for Micro inputs only)
- Insert (for Micro inputs only)
- Audio processor (for Micro inputs only)
- 3-band Parametric Equaliser (for Micro inputs only)
- SRC By-Pass (for Digital inputs only)
- Input mute status enabled in case of failure (for Digital inputs only)
- Phase inversion
- PAN/BAL
- Busses assignment
- Mode selection (Mono, Stereo, Left, Right)
- Control Room - Studio Mute
- Timer Restart
- Tally 1 - 2 Logic
- Logic commands for START-STOP functions
- Intercom

Outputs

Digital **PGM** with sample rate selection (up to 96 KHZ)
Digital **UTL** with sample rate selection (up to 96 KHZ)
2 x TELCO Digital 48 KHz (Clean Feed)

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2 x PGM Analog Stereo (24 bit D/A)
2 x UTL Analog Stereo (24 bit D/A)
2 x TELCO Analog Mono (24 bit D/A) - Clean Feed
Analog **MONO** (24 bit D/A)
CONTROL ROOM: Analog Stereo (24 bit D/A)
CONTROL STUDIO: Analog Stereo (24 bit D/A)
HEADPHONE: Analog Stereo (24 bit D/A)

External Controls

- RS 232 interface
- Control via TCP/IP network (future enhancement)
- Remote Fader with logic controls , (TB, On-Off, Cough)
- VGA output
- Synchronisation: Master/Slave with AES/EBU clock in/out
- Word Clock
- 16 Logic general pourpose inputs GPI
- 16 Logic general pourpose outputs GPO
- 2 x ON AIR Tally
- TalkBack Output

Monitoring

- Level Control for Headsets, Control Room, Control Studio and CUE speakers
- 2 x External Inputs for Monitor, Headset, and CUE speakers
- Headset with built-in amplifier
- Cue speakers with built-in amplifier
- Level Meter on TFT colour monitor

Display

- VGA output
- TFT Colour monitor (on Energya-LCD model only, future enhancement)

General Functions

- Built-in TalkBack Microphone
- Watch/stopwatch
- Security Password
- Jog reel and keypad for quick configurations / checks
- 4 programmable Hot Keys
- User Preset

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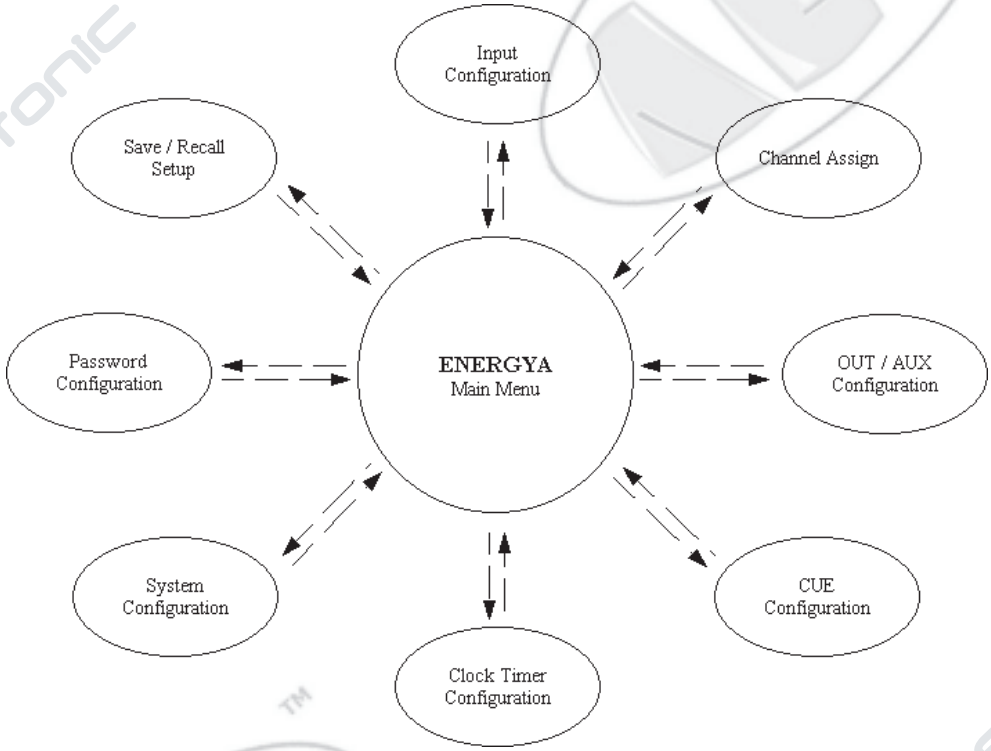
Selection and Editing commands

The editing commands of the Energya digital mixer are located on the right, under the speaker.

The following are available directly on the mixer for interacting with these tools: 4 arrows (up - down - left - right), a jog (incremental encoder), an ENTER key and an ESC key. The operator can also use an external keyboard and a mouse to further facilitate editing commands (future enhancement).

Description of Menus



Main Menu

Now let's take a look at the menus shown on the Energya monitor.

The main menu consists of 8 options (Input Configuration, Channel Assign, OUT / AUX Configuration, CUE Configuration, Clock Timer Setup, System Configuration, Password Configuration and Save/Recall Setup) - select one of these to access the typical characteristics of that menu.

Input Configuration

It is possible to set the different inputs depending on the connected sources. The first step is to

assign the name source (Ie. Line1= CD1), the second one is to enter into the setup menu where is possible to set the other channel functions.

The inputs already setted will then be assigned to the 8 available channels (slider) by using "Channel assign" menu.

There are three types of input: 4 microphone, 16 analog line and 4 digital line (AES/EBU).

Obviously, LINE inputs, whether analog or digital, can be of 3 different types: NORMAL, TELCO 1 and TELCO 2.

Let's see what the Telco mode is. *This mode strictly concerns analog or digital line channels (there are 2 or 4 Telco busses selectable via System Setup Menu) - these channels are typically used for connecting one or more telephone hybrids to the mixer. When an input is defined as TELCO, the input signal cannot be sent to the Telco bus itself. E.g.: the input signal for analog line 2, defined as TELCO 1, and associated with channel 8, cannot be addressed to the TELCO 1 bus. Communication with a user via a telephone hybrid generally occurs in 2 modes: private communication and direct communication.*

PRIVATE COMMUNICATION
While the DJ or the music are broadcast live, the director talks with the listener via the service microphone, by pressing the TB Key. The director is able to hear the listener via the CUE line. If the channels being broadcast live at the time are programmed to also send their signal toward the TELCOs, the listener on the telephone, in addition to hearing the director, also hears what is being broadcast. The system is designed so that, when the TELCO channel is in STOP state (therefore, in private mode), the signal directly sent by the modules to the TELCO bus must be attenuated to a certain preset degree, whereas the signal coming from the service microphone must be set to normal level.

DIRECT COMMUNICATION
While broadcasting live, the DJ talks with the listener (also live) via the DJ microphone. The MIC DJ channel is in START state and the slider is raised, the TELCO channel is also in START state, with the slider raised.

We shall now examine how editing is organised inside the masks. Use the "Enter" key to select

the option flashing below the cursor. Using the left and right arrows, move around the different fields of the selected option, and use the up and down arrows to change the value of the data-item under the cursor. When you have finished entering the field, press "Enter" to exit the option you have just edited, and proceed to edit other data.

This is the procedure to arrange association of the device at input.

Example: Input Mike 1 - Guest1 Microphone

- Locate the flashing cursor in the box to the left of the Mike 1 words - Press "Enter" - Use the up arrow key to select the letter N - Use the right arrow key to move into the next field - Use the same technique to fully compose the word Guest1 - remember you have a maximum of 10 fields at your disposal. - Press Enter, and the cursor will move to the left of the word Setup referring to Mike 1.

You can proceed in the same way for all the inputs.

We shall now see how to set specific parameters for the three types of input.

Mike Setup

You can set all the necessary values by using the editing system we explained previously.

Let's see to what the 26 available parameters refer.

MIC ADJ
Adjustment of input level in the range 0 ÷ +30 dB for microphones with very low levels.

LEVEL
Typical adjustment of input level in range - 12 ÷ +12 dB

PAN
Channel balance adjustment

INSERT
This function enables you to shift the pre-amplified microphone signal to the INSERT input/output instead of to the analog bus. If enabled, it sends the output signal to the insert connector - this signal can then be used as an input of an external audio processor. The processed signal is then re-introduced to the insert input for re-distribution to the analog bus.

PHANTOM
Enable +48V power supply

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INTERNAL VOICE PROCESSOR
Enable internal microphone processor.

SETUP
For accessing the configuration parameters of the internal microphone processor.

PGM
Selects assignment or non-assignment to the Music bus or Speech bus.

UTL
Selects assignment or non-assignment to the UTL bus

TELCO PRIVATE
Enable to use the microphone in order to communicate with the telephones (Bus Telco) also in private. The communication is possible if TB external (connector *Remote Fader*) is active

TELCO1
Selects assignment or non-assignment to the TELCO 1 bus when the channel is in start status

TELCO2
Selects assignment or non-assignment to the TELCO 2 bus when the channel is in start status

TALLY1
Enables a stable contact when the channel is in Start status and addressed to the PGM bus

TALLY2
Enables a stable contact when the channel is in Start status and addressed to the PGM, UTL, TELCO1 or TELCO2 bus

MUTE C.ROOM ON START
If ON is activated, and the channel is in Start status, the CONTROL ROOM output is disabled

MUTE C.STUDIO ON START
If ON is activated, and the channel is in Start status, the CONTROL STUDIO output is disabled

MUTE CUE SPEAK ON START
If ON is activated, and the channel is in Start status, the CUE speaker output is disabled

MUTE C.ROOM ON CUE
If ON is activated, and the channel is in Cue status, the CONTROL ROOM output is disabled

MUTE C.STUDIO ON CUE
If ON is activated, and the channel is in Cue status, the CONTROL STUDIO output is disabled

MUTE CUE SPEAK ON CUE
If ON is activated, and the channel is in Cue status, the Cue Speaker output is disabled.

MUTE BUSES ON CUE
If ON is activated, and the channel is in Cue status, the PGM, UTL, TELCO 1 and TELCO 2 busses are disabled, if the channel was on "Start", the key start to flashing

TIMER RESTART
Providing it is active, if you press the channel START button, a restart command is automatically sent to the TIMER, provided the AUTO push-button of the TIMER section is active

FADER AUTO START/ STOP
If it is active, by raising the SLIDER, the channel automatically goes into START status; lowering the SLIDER, the channel automatically goes into STOP status

NO ECHO ON CMD REMOTE
If active, when a START command is received externally, the channel goes into start status. However, if any "TLC start mode out" command is present, it is not energised.

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This function is used if there are devices with pulsed starts/stops all on the same wire: the start's echo would cause the source to stop. On the contrary, in the OFF mode, the command is sent back at output too

GPI / GPO SETUP
For access to the remote controls menu

Internal Voice Processor Setup

Let's analyse the microphone processor options.

A microphone process curve can be called back and/or modified from this menu.

PRESET N. & DJ NAME
These parameters identify the number of the curve associated with a given DJ, up to a maximum of 30, and the name of the DJ too. Inputting is done, as we explained previously, by using the Enter and arrow keys. The following parameters are typical of a 3-band microphone processor. First of all, we shall see what the variation ranges are for each parameter, and we shall then explain them.

EQUALIZZATION:

	Low Band	Mid Band	High Band
CENTER F.	0.03 ÷ 0.6 kHz	0.2÷7.5 kHz	0.4 ÷ 15 kHz
GAIN	+/-16dB	+/-16dB	+/-16dB
BANDWIDTH	0.1 ÷ 5 oct	0.1 ÷ 5 oct	0.1 ÷ 5 oct

DE ESSER:

AMOUNT	0% ÷ 100%
RELEASE TIME	1 ÷ 10 dB/sec

MIC COMPRESSION:

THR	+2 ÷ -8 dB
ATTACK	1 ÷ 20 (1=SLOW, 20=FAST)
AGC RELEASE	1 ÷ +20 dB/s

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CENTER F indicates the band centre and its possible variation range

GAIN indicates the amplification and attenuation quantity to be applied to that given band.

BANDWIDTH, indicates band-width in octaves.

DE-ESSER: Option enable (ON OFF)

DE-ESSER AMOUNT: value to control the signal when it goes over an internal threshold.

DE-ESSER RELEASE indicates the preset of the release time, i.e. of the speed at which AGC follows the signal amplitude.

DS MODE: check filter for the "S"

COMPRESS: Option enable (ON OFF)

THR is the audio level threshold where the processor start working.

COMPRESSOR ATTACK TIME: sets the compressor tripping time

AGC RELEASE: sets the compressor release time (dB/s)

Line Setup

Let's analyse Line input.

Let's see to what the 24 available parameter refer.

LEVEL
Typical adjustment of input level in range -12 ÷ +12 dB

BALANCE
Channel balance adjustment

TYPE
This function enables selection of the Normal operating mode (standard) or of the Telco operating mode, used for telephone bars - the latter can be assigned to 2 channels only, one for Telco 1 and one for Telco 2.

MODE
The Left and Right input channels can be controlled with this selection. In stereo mode, the

L and R output channels do not change; in Mono mode, the same mono signal (L+R)/2 is present on both the L and R outputs; in the LT mode, the same L signal is present on both L and R outputs; finally, in the RT mode, the same R signal is present on both L and R outputs.

PHASE
This function makes it possible to reverse the phase of a channel with respect to another channel.

PGM
Selects assignment or non-assignment to the Music bus

UTL
Selects assignment or non-assignment to the UTL bus

TELCO1
Selects assignment or non-assignment to the TELCO 1 bus when the channel is in start status. This function can be activated only if the channel was not defined as Type Telco 1

TELCO2
Selects assignment or non-assignment to the TELCO 2 bus when the channel is in start status. This function can be activated only if the channel was not defined as Type Telco 2

TALLY1
Enables a stable contact when the channel is in Start status and addressed to the PGM bus.

TALLY2
Enables a stable contact when the channel is in Start status and addressed to the PGM, UTL, TELCO1 or TELCO2 bus.

MUTE C.ROOM ON START
If ON is activated, and the channel is in Start status, the CONTROL ROOM output is disabled.

MUTE C.STUDIO ON START
If ON is activated, and the channel is in Start status, the CONTROL STUDIO output is disabled.

MUTE CUE SPEAK ON START
If ON is activated, and the channel is in Start status, the CUE speaker output is disabled.

MUTE C.ROOM ON CUE
If ON is activated, and the channel is in Cue status, the CONTROL ROOM output is disabled.

MUTE C.STUDIO ON CUE
If ON is activated, and the channel is in Cue status, the CONTROL STUDIO output is disabled.

MUTE CUE SPEAK ON CUE
If ON is activated, and the channel is in Cue status, the Cue Speaker output is disabled.

MUTE BUSES ON CUE
If ON is activated, and the channel is in Cue status, the PGM, UTL, TELCO 1 and TELCO 2 busses are disabled, if the channel was on "Start", the key start to flashing.

TIMER RESTART
If it is active, by pressing the channel START button, a restart command is automatically sent to the Timer, provided the AUTO push-button of the Timer section is active.

FADER AUTO START/ STOP
If it is active, by raising the SLIDER, the channel automatically goes into START status; lowering the SLIDER, the channel automatically goes into STOP status.

NO ECHO ON CMD REMOTE
If active, when a START command is received erxternally, the channel goes into start status. However, if a "TLC start mode out" command is present, it is not energised. This function is used if there are devices with pulsed starts/stops all on the same wire: the start's echo

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would cause the source to stop. On the contrary, in the OFF mode, the command is sent back at output too.

MORE
For accessing the remote controls menu.

AES/ EBU Setup

We shall now take a look at how the AES/EBU input differs from the Line input.

In addition to the Line input commands we already described, the following commands are available

WORD LENGTH
This is used for selecting the length of the transmission frame - possible values are 16, 20 and 24 bits.

SAMP.RATE
For viewing which frequency of sampling is receive into the digital input.

All the other parameters are identical.

We shall now examine how to set the remote controls by using the MORE push-button available in all the input menus.

With this menu, you can assign a remote control to a maximum of 16 events These are the

parameters available for selection:

OUT START
This parameter couples one of the 16 available remote controls to the Start event in editing. The Mode option is available for all remote controls.

MODE
This parameter couples the remote control's mode, which can be any of the following: **FIX NC** (normally closed stable contact), Fix NO (normally open stable contact), **PULS NC** (normally closed pulsed contact), **PULS NO** (normally open pulsed contact). The Pulse Time parameter is also available for pulse output remote controls.

PULSE TIME
In the Puls mode, this parameter couples the pulse duration time (in seconds).

OUT STOP
This parameter couples one of the 16 available remote controls to the Stop event in editing.

IN START
This parameter makes it possible to combine one of the 16 available remote controls with the Start function. The command received from the coupled photocoupler starts the channel.

IN STOP
This parameter makes it possible to combine one of the 16 available remote controls with the Stop function. The command received from the associated photocoupler starts the channel.

IN CUE
This parameter makes it possible to combine one of the 16 available remote controls with the Cue function. The command received from the associated photocoupler starts the channel.

IN TBK
This parameter makes it possible to combine one of the 16 available remote controls with the TalkBack function.

Channel Assign

This menu allowed to associate the input (configured before) to the slider.

By using the same editing system, you can select up to 16 sources (8 for channel A and 8 for channels B).

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System Setup

LANGUAGE
For selecting a language from among those available: English, Italian or Spanish

TCPI P ADDRESS
This is used for setting the IP address of the Energya mixer, which is necessary for it to be inserted into the network together with other devices, such as PCs, printers, etc - it usually observes the following ranges: RFC1918 10.0.0.0 ÷ 10.255.255.255, 172.16.0.0 ÷ 172.31.255.255, 192.168.0.0 ÷ 192.168.255.255

TCPI P NETMASK
For setting the address of the Netmask, usually of the following type: 255.255.255.0

FADER REFERENCE
Enables to changed the slider scale

KLOCK MODE
Select the clock format 12H or 24H

TALLY1 MODE / TALLY2 MODE
Used for selecting flashing or steady output.

WORD CLOCK SYNC
This is an I/O for synchronising the digital frame by exploiting word synchronism (L/R clock)

AES/ EBU SYNC
An I/O used for synchronising the digital frame by exploiting an AES/EBU signal

SYNCRO CLOCK
For synchronising the Energya clock directly with atomic clocks transmitting via information networks, using the methods specified in ***Network Time Protocol***

SYNCRO SERVER
Not yet available

ADDITIONAL TELCO 3,4
Additional TELCO 3,4 function allows to have 4 TELCO busses; see forwrd in the section" 4 TELCO busses"

DEFAULT PRESET
Delete the Preset online without change the memory

GPI - GPO
For changeover to the function keys configuration menu

CURSOR BLINK
Select the blink option for the cursor

GPI / GPO Setup

There are four sections referring to function keys F1, F2, F3 and F4. Similarly, there is a Out event section, which refers to an event - e.g. arrival of an external command - pressing of certain keys or sets of keys ,etc. In the Input Name section it is necessary to assign a name (max 4 char) to control the input photocouplers 13, 14, 15 and 16 status (ie incoming phone call).

We shall now take a look at an example for setting F2.

Using the editing method we described previously, you select one of the 16 available photocouplers: use the **MODE** option to select type of contact, **FIX** (stable) or **PULS** (pulsed), and type of operation **NO** (normally open) or NC (normally closed). The **PULSE TIME** option enables us to set pulse time in seconds for **PULS NO** or **PULS NC**.

Password Setup

You can enter a password with this option. When enabled, it must be inserted in order to access protected menus. To select, shift to ON the push-button for the highlighted menu to be protected.

Clock Timer setup

The following options are available in addition to return to main menu:

DATE SET
For setting correct date values.

CLK SET
For setting correct time values.

The Timer receives commands strictly from the mixer push-buttons.

Under the Timer window four buttons are available to display the status of the 13, 14, 15 and 16 photocoupler inputs. See GPI/GPO setup.

SAVE / RECALL Setup

Use this simple menu to **LOAD** or **SAVE** one of the 64 **PRESETS** associated with a **NAME**. Whenever you save or load, you are prompted to confirm whether you wish to continue with the operation.

Cue Setup

The pre-listening menu has 4 options. From this menu, you can define which signal to display on the CUE viewing bar.

Cue Meter Selection
This is used for selecting which of the available signals UTL, TELCO1, TELCO2, EXT1, EXT2) should be displayed on right ledmeter, unless a Cue push-button was selected.

Talk Back to Telco 1
For selecting whether to send the intercom microphone signal of the mixer to the Telco 1 bus, when is activate the "TB" key on the mixer.

Talk Back to Telco 2
For selecting whether to send the intercom microphone signal of the mixer to the Telco 2 bus, when is activate the "TB" key on the mixer.

Talk Back to Control Studio
For selecting whether to send the intercom microphone signal of the mixer to the Control Studio output, when is activate the "TB" key on the mixer.

Cue Speaker
Use this to select which of the available signals (PGM, UTL, EXT1, EXT2, CUE) to send to the mixer speaker.

Spk mute on TalkBack
For selecting whether to disable the speaker when using TalkBack.

Cue interlock
This is used for enabling the function whereby, when a Cue is pressed, the previously active one is de-selected automatically.

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OUT/ AUX Configuration

The mixer has the following inputs and outputs:
- two external inputs EXT 1 and 2 analog inputs
- two PGM analog outputs in parallel
- one PGM digital output
- two UTL analog outputs in parallel
- one UTL digital output
- two analog Telco (1 and 2) outputs
- two fixed digital 48 kHz Telco (1 and 2) outputs
- a Mono output

EXT 1 LEV
Adjustment of auxiliary input level Ext1 - this control is in the range -12 to +12 dB

EXT 2 LEV
Adjustment of auxiliary input level Ext2 - this control is in the range -12 to +12 dB

PGM LEV
Adjustment of the PGM output signal in range 0 ÷ +12 dB

UTL LEV
Adjustment of the level of output signal UTL in range 0 ÷ +12 dB

TELCO 1 LEV
Adjustment of the level of the Telco 1 output signal in range 1 ÷ +12 dB

TELCO 2 LEV
Adjustment of the level of the Telco 2 output signal in range 1 ÷ +12 dB

MONO LEV
Adjustment of the level of the PGM output signal in range 0 ÷ +12 dB

MONO ASSIGN
For selecting which bus to send to the mono output - possible options: PGM, UTL, TB (local microphone)

You access the following menu by selecting the **DIGITAL SETUP** push-button.

SAMPLE RATE
For selecting the sample rate at the PGM digital output - possible configurations: 32, 44.1, 48, 96 KHz

WORD LENGHT
For selecting the transmission frame length from among the following available values: 16, 20, 24 bit

SAMPLE RATE
For selecting the sample rate at the PGM digital output - possible configurations: 32, 44.1, 48, 96 KHz

WORD LENGTH
For selecting the transmission frame length from among the following available values: 16, 20, 24 bit

WORD LENGTH can be selected only with **TELCO 1** and **2**.

Direct commands

Commands linked to a specific push-button on the mixer, causing an immediate action.

Direct commands : Input channels section

The following are present on each channel:

SEL
For deciding which section of the channel to activate (A or B). A and B can be selected only if the channel is in STOP state - selection causes the relevant LED to light up automatically.

EDIT
When the EDIT key is pressed, the display shows all the parameters for that channel (CHANNEL SETUP)

CUE
The following actions occur when a CUE key is pressed: the input signal of that channel is sent to the CUE bus and is displayed on the right-hand level meter. Moreover, this selection causes the relevant LED to light up automatically. This signal will replace the previously selected signal on the C.Room, CUE speaker and headset outputs. Simultaneously, the key for the channel being listed to in C.Room will change from steady light to flashing.

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START
When the START key is pressed, the following actions occur: the channel input signal is sent to the PGM and/or UTL busses, if previously selected; the CUE function is disabled if it had been enabled and any command that may have been associated with it is activated (see Tlc setup).

STOP
When the STOP key is pressed, the following actions occur: the channel input signal is no longer sent to the PGM and/or UTL busses, if they had been selected. Telco 1 and Telco 2 busses are not influenced by the STOP. If previously enabled, the CUE function is disabled, and any command that may have been associated with it is activated (see Tlc setup).

Direct commands: Control Room Section

The level of the Control Room output can be varied with the C.Room potentiometer on the panel.

Ext1
When the EXT1 key is pressed, the following actions occur: the EXT1 input signal is sent to the Control Room output, and the function previously set on the Control Room bar is disabled.

Ext2
When the EXT2 key is pressed, the following actions occur: the EXT2 input signal is sent to the Control Room output, and the function previously set on the Control Room bar is disabled.

PGM
When the PGM key is pressed, the following actions occur: the PGM input signal is sent to the Control Room output, and the function previously set on the Control Room bar is disabled.

UTL
When the UTL key is pressed, the following actions occur: the UTL input signal is sent to the Control Room output, and the function previously set on the Control Room bar is disabled.

Direct commands : Control Studio Section

The level of the Control Studio output can be varied with the C.Studio potentiometer on the panel.

Ext1
When the EXT1 key is pressed, the following actions occur: the EXT1 input signal is sent to the Control Studio output, and the function previously set on the Control Studio bus is disabled.

Ext2
When the EXT2 key is pressed, the following actions occur: the EXT2 input signal is sent to the Control Studio output, and the function previously set on the Control Studio bus is disabled.

PGM
When the PGM key is pressed, the following actions occur: the PGM input signal is sent to the Control Studio output, and the function previously set on the Control Studio bus is disabled.

UTL
When the UTL key is pressed, the following actions occur: the UTL input signal is sent to the Control Studio output, and the function previously set on the Control Studio bus is disabled.

CUE
When the CUE key is pressed, the following actions occur: the signal on the CUE bus is sent to the Control Studio output, and the function previously set on the Control Studio bus is disabled.

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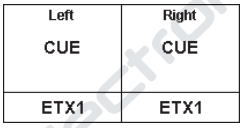
TB
When the TB key (Talkback) is pressed, the signal of the service microphone is sent to the busses selected in the "AUX In/Out Setup" menu.
BEWARE: the Microphone signal replaces the signal which had up to then been directed to the pre-selected outputs. When the TB key is released, everything returns to its previous state.

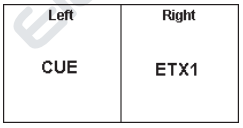
PRIVATE communication, using a telephone hybrid (AEV mod. ITB302) if any, can be performed only by using the TB microphone signal, with "TELCO" channel in STOP and CUE selected.

Direct commands: Headset section

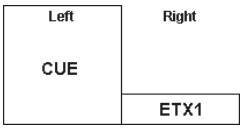
The level of the Headset output can be varied with the "Headset" potentiometer on the panel. The signal directed to the Control Room is usually sent to the headset output. Whenever one of the CUE keys is activated, CUE replaces the Control Room signal. There may be exceptions depending on activation of the DIM and SPLIT functions.



DIM
If activated, it directs the signal on the CUE bus to the L and R headset output, and adds it to the signal present on the bus selected by the Control Room section - the latter is attenuated.



SPLIT
If activated, it directs the signal on the CUE bus [(L+R)/2] to the left ear-piece of the headset, and directs the signal on the bus selected in the Control Room section [(L+R)/2] to the right ear-piece.



DIM+ SPLIT
The two functions can also be combined, so that the CUE signal is on the left ear-piece of the headset and the signal selected by the Control Room section is on the right side, attenuated.

Direct commands: CUE Speaker Section

VOLUME SPEAKER
Used for adjusting the volume of the speaker cabinet on the mixer. The selection of what signal to send to Headphone is operated by "CUE Configuration" menu.

Direct commands: Timer section

The clock/timer selection commands are also located on the console - we shall see them right away on the "**timer**/ **Clock setup**" page.

AUTO
If active, it enables automatic RESTART when START is pressed on a channel with the "timer restart" function enabled. This swich will be visible in the square panel calles "Timer" of the menu.

S/ S (RUN)
Enables manual starting and stopping of the timer. If you press it once, counting is enabled, if you press it again, the count is stopped. This swich will be visible in the square panel calles "Timer" of the menu.

RESET
Used for resetting the timer: if the count was stopped, the timer is reset, if it was not stopped, it restarts automatically after being reset.

HOLD
Use this to view a partial time without shutting down the timer. If you press it again, it displays the current count again, or it displays the total if the count had been stopped while the partial time was being viewed. This swich will be visible in the square panel calles "Timer" of the menu.

4 Telco Option

It is possible to have up to 4 Telco channels modifying the UTL bus in this option the UTL bus is not available anymore..

To activate this option select System Configuration menu.

In the option "Additional Telco 3,4" select ON.

Now you must reboot the mixer.

Telco 3 and Telco 4 mono busses have substituted the UTL stereo bus in all menu.

In the next page you can find the changed menu .

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How to

How to use TELCO buses

The buses Telco can be 2 or 4 depending on the configuration set in the System Setup menu.

The Telco channel is used to connect one or more telephone hybrids to the console. An automatic control avoids the re-sending of the Telco signal on the same Telco bus.

Each telephone hybrid is provided with an input to direct the signal that has to be sent to the listeners. The same hybrid has also an output from which you can take the signal that has to be sent to the console.

The console's output (eg. TELCO 1) needs to be plugged with the hybrids' INPUT.

The output of the telephone hybrid needs to be plugged with any digital line input. The present input needs to be set as TELCO (eg. TELCO 1) and not as NORMAL.

In general the communication with an user through a telephone hybrid takes place in two different moments: private communication and live communication.

Private communication

The director can speak privately using the telephone or through the service microphone with the TB key of the mixer or with an external microphone if the PRIVATE TELCO has been set (to see Menu Edit).

Let's take for example the private communication on TELCO 1:

In the Cue configuration menu the TB to TELCO 1 function must be activated.

To activate the private communication with the telephone the TELCO 1 channel must be in the STOP position and the cue must be activated

The activation of the CUE buttons allows the selection of the telephones to which one can privately speak in case of using more TELCOS at the same time.

To activate the service microphone and to speak through the telephone the button TB of the console must be pressed; if you use an external mic it will selected through the external TB.

If you want to send audio in stand by you just need to enable "TELCO 1 ON" in all the buses in use to for the on air, by entering the channels' EDIT menu.

Once the TB button pressed the audio in stand-by will be automatically smoothed to allow the director to have no problems of communication.

Live communication

The DJ speaks through his microphone with the listener while they are both on air.

The MIC DJ channel is in the START position and the slider is lifted up, the TELCO 1 channel is in the START position and the slider is lifted up.

All the channels must be sent to the telephone and must have the "TELCO 1 ON" function activated.

How to use the Talk Back

There are two kind of talk backs
TB from Control Room (director) to Control Studio (DJ) or TELCO
TB from Control Studio (DJ) to Control Room (director)

Talk Back from Control Room (Regia)

The TB from Control Room (direction) can be sent to Control Studio (DJ), TELCO 1, TELCO 2, UTL and eventually TELCO 3 and 4.

The selection of the TB signal's destination is done in the CUE CONFIGURATION menu.

The talk back button is next to the "MAIN" button and it is not necessary to use an external microphone because there is a pre-amplified microphone that is embedded inside the console.

If TB is received from Control Room, the signal of the internal microphone will be sent to the enabled buses and it will replace the audio previously selectioned.

The same TB signal from Control Room will enable the Mute of the Control Room's output to avoid Laarsen effects.

If TB to Control Studio and TB to TELCO 1 are simultaneously enabled the following control is carried out: if TELCO 1 is in the start or stop position but the CUE is off, then the TB signal is sent to Control Studio.

If TELCO 1 is in the stop position and CUE is ON the TB signal will be sent to TELCO 1 and no more to Control Studio.

This is to avoid that the DJ is annoyed during the private communication and viceversa.

Talk Back from Control Studio (DJ)

The TB from Control Studio (DJ) is sent to Control Room (direction) and to the Bus Telco if the telephone is in STOP with active CUE (condition of private communication with the telephones).

The talk back button must be connected to the "Remote/Fader" input.

If TB is received from Control Studio, the signal of the microphone defined as "M.SPCH" (Main Speach will be sent to Control Romm replacing the previously selectioned audio.

The same TB signal from Control Studio will enable the Mute of the changeable output of Control Studio to avoid Laarsen effects.

How to Upgrade your Mixer Energya

Connect by internet at this address http://www.aev.net/energya/energyaform.php3, fill the form and download the upgrade file.

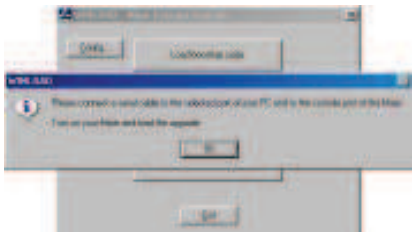
Create a new directory (e.g. C:\ENERGYA) Copy into the new directory the files:

- WINLOAD.EXE
- KERNEL.MXR
- OSIMAGE.MXR
- APPLICATION.MXR

Turn OFF your mixer Energya. Launch WINLOAD.EXE (Tested on WIN 98)

Select the PC Serial Port into Configuration menu and click OK button

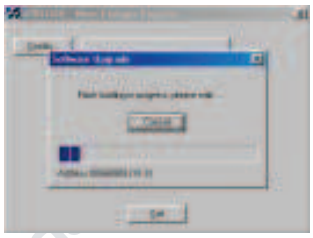
Connect the ENERGYA to the PC trough the serial cable click on OK button and Turn On the ENERGYA:



Select "Load KERNEL" menu

Browse into new folder ENERGYA, select the file KERNEL.MXR and OPEN it

Wait for the end of the system download...

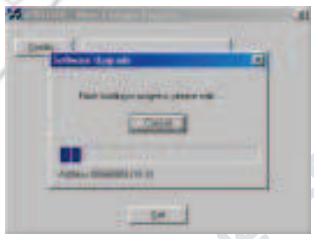


At the end of the download select OK and go to the next step

Select "Load HARDWARE CONFIGURATION" menu

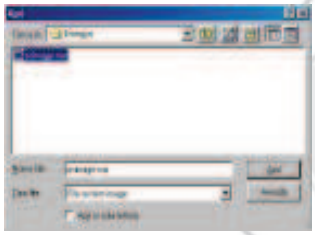
Browse into new folder ENERGYA, select the file MIXHW.CFG and OPEN it

Wait for the end of the system download...



Select "Load FILESYSTEM" menu

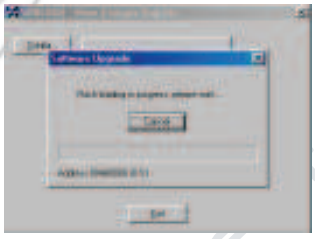
Browse into new folder ENERGYA, select the file OSIMAGE.MXR and OPEN it



Wait for the end of the system download...

Now select "Load APPLICATION" menu

Browse into new folder ENERGYA, select the file APPLICATION.MXR and OPEN it



Wait for the end of the system download...

At the end of the download switch OFF ENERGYA, disconnect serial cable and switch ON ENERGYA again.

Exit from WINLOAD.EXE

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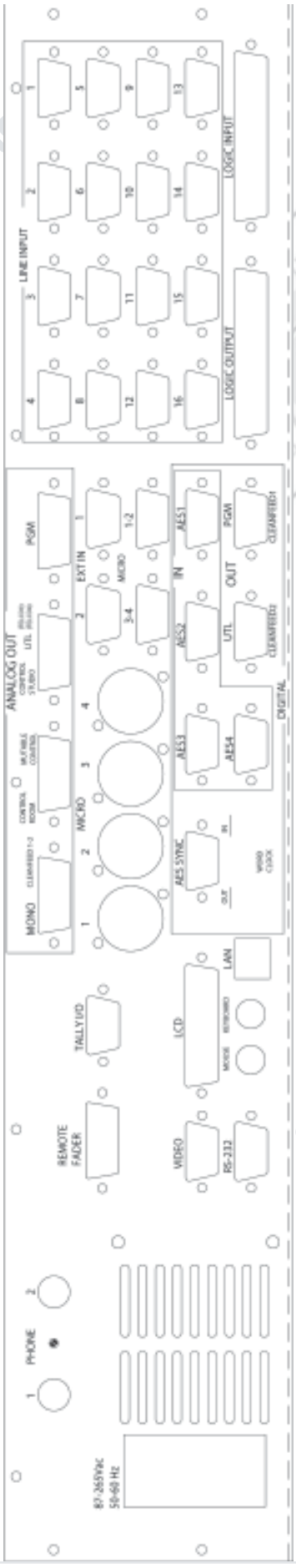
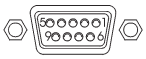
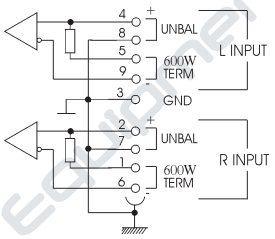
Rear panel



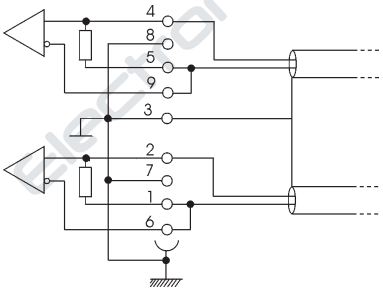
Line Input & Ext Input



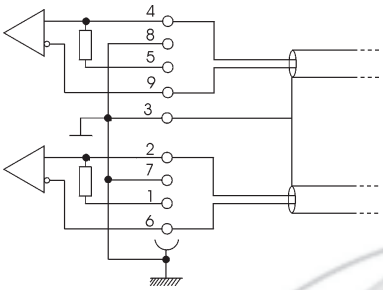


Line Input 1 ÷ 16
Ext Input 1 e 2

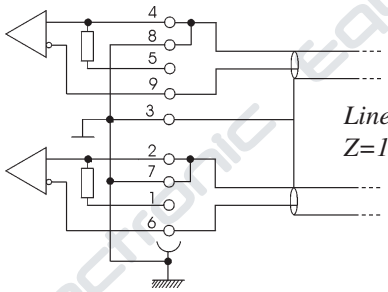
Example Connections



Line & Ext Input
Z=600 Ω Balanced

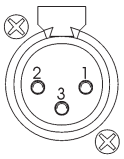


Line & Ext Input
Z=10 KΩ Balanced

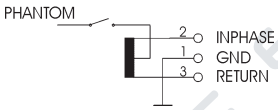


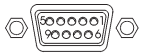
Line & Ext Input
Z=10 KΩ Unbalanced

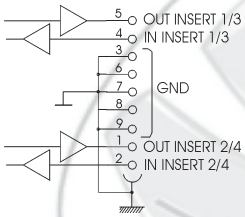
Micro Input & Insert



Micro Input

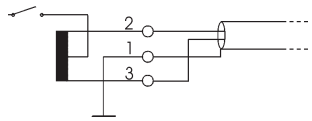




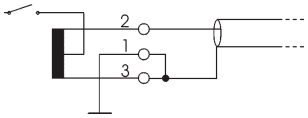


Micro Insert 1-2 3-4

Example Connections

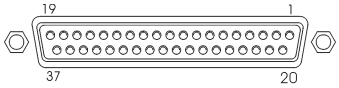


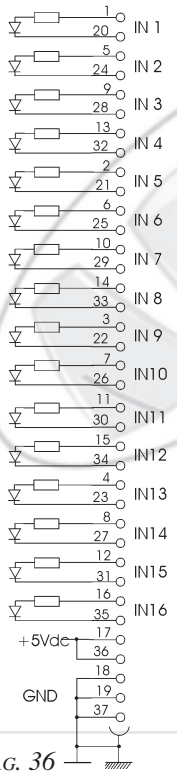
Micro Balanced



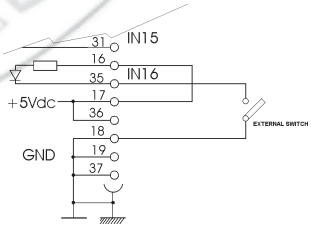
Micro Unbalanced

Logic Input & Output



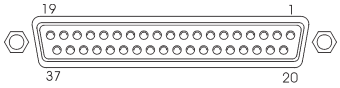


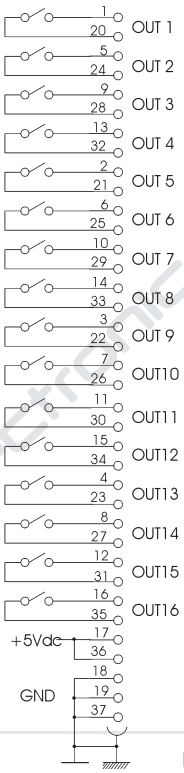
Logic Input



Example connections

5VDC 100mA Max



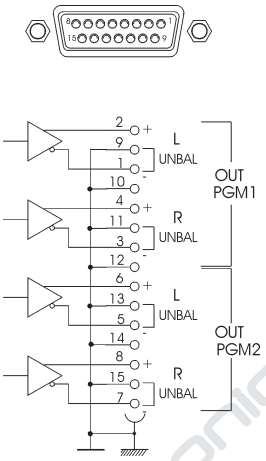


Logic Output

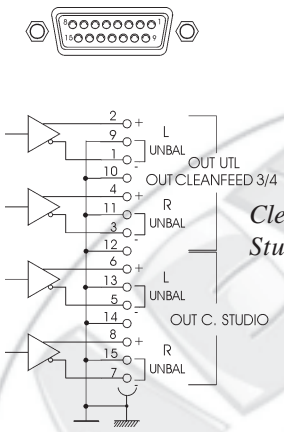
Switch out 24VAC 50mA Max

5VDC 100mA Max

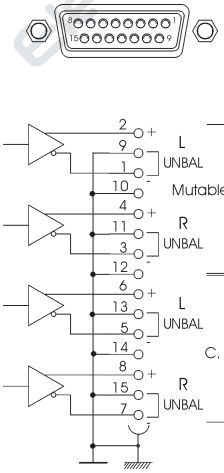
Analog Outputs



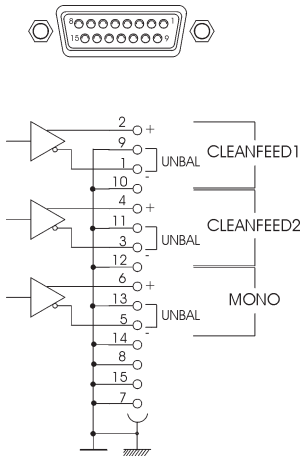
Analog Output PGM



Cleanfeed / Control Studio

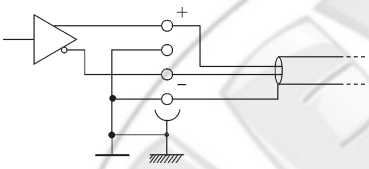


Control Room
Mutable Control Studio

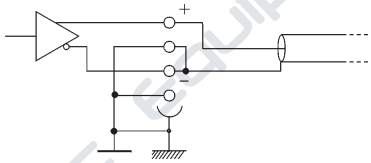


Cleanfeed 1 - 2
Mono

Example Connections

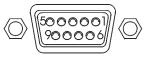


Generic Balanced Output

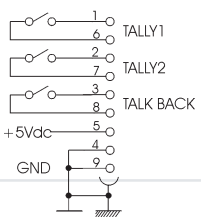


Generic Unbalanced Output

Tally I / O



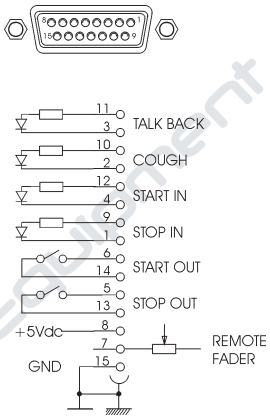
Tally I/O



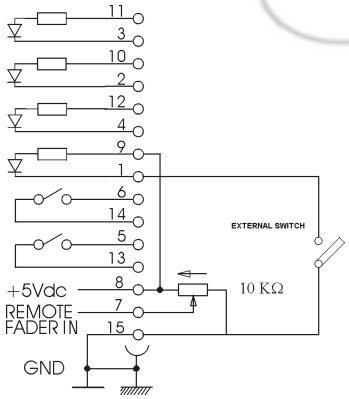
Switch out 24VAC 50mA Max

5VDC 100mA Max

Remote Fader



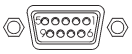
Remote Fader

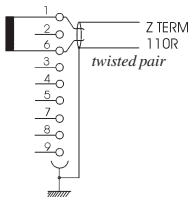


Switch out 24VAC 50mA Max

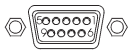
5VDC 100mA Max

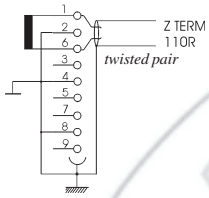
Digital Iuput & Output



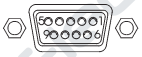


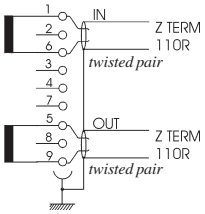
AES Input 1-2-3



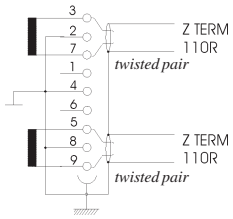


AES Input 4



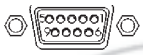


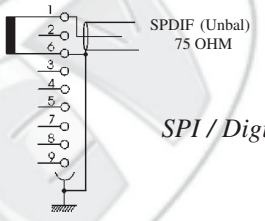
AES Sync



Cleanfeed 1 / Cleanfeed 2

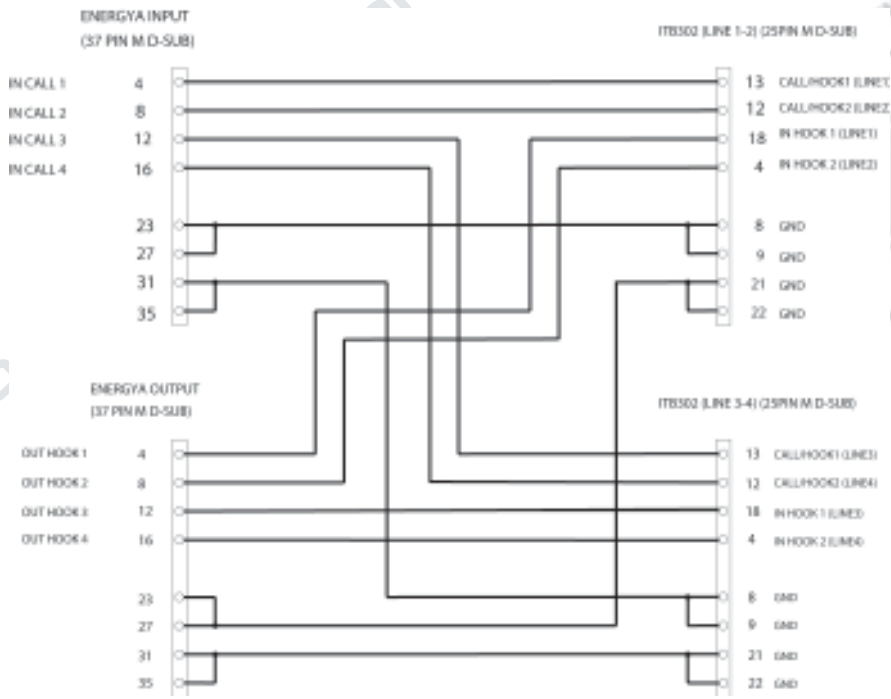
PGM / UTL





SPI / Digital Input Sync

How to connect I TB 302



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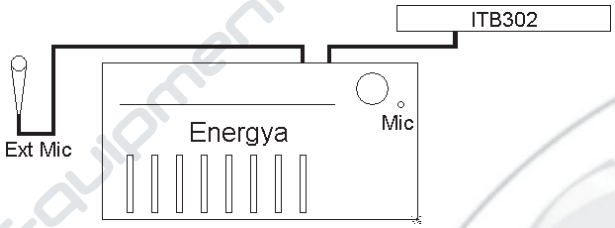
Application note

Configuration 1: CONTROL ROOM only



The DJ can use the Microphone (ON AIR's microphone) both for going on air and to answer PRIVATE phone calls.

The private TELCO communication takes place in the following way: -
Telephone calls is incoming:
- When the line is hooked up the listener hears the PGM signal (stand-by signal).
- To speak in private with TELCO using the DJ microphone the following settings are required:

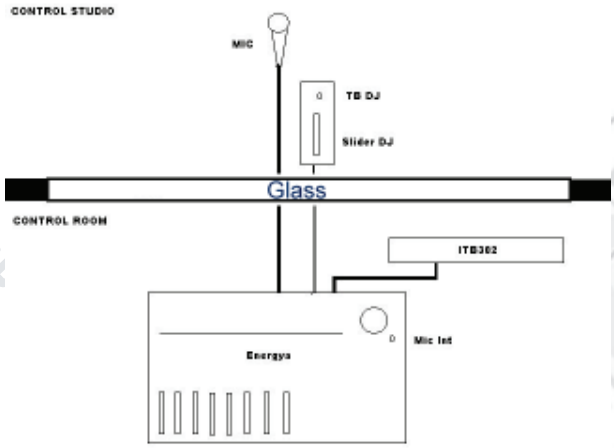
TELCO = STOP
CUE TELCO = ON
MIC DJ = OFF
MIC DJ TELCO PRIVATE = ON
MIC DJ TELCO 1 E 2 = ON

When the DJ switches CUE TELCO = ON the PGM signal decreases of 20 dB (PGM atten.on telco Private = -20 dB) and the microphone's signal is immediately sent to TELCO (EXT TBK control on telco private = OFF). In this way the DJ can answer to the listener directly from the ON AIR microphone.

The INTERNAL microphone keeps being active: by pushing the console's TB the listener can hear the signal of the internal microphone and also the PGM decreases of 20dB (Atten.on telco private and TB = -20)

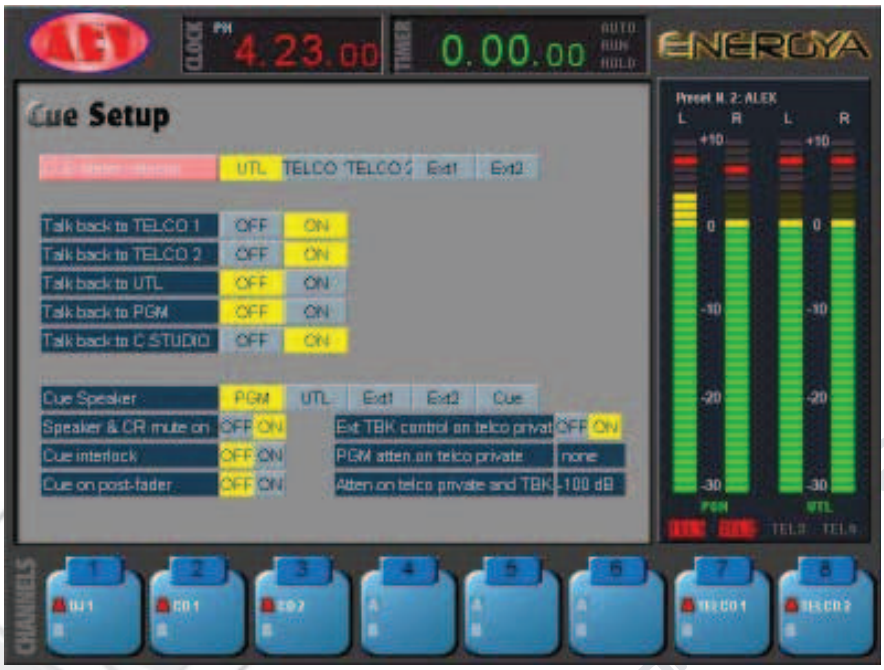
Configuration 2:

CONTROL ROOM (direction) and CONTROL STUDIO (Dj)



When the DJ goes ON AIR, the private director can use the internal microphone to answer the phone.

Even the DJ microphone can be used to speak in private with the telephone provided that the TB button of the remote fader is pressed.



The PRIVATE communication between DIRECTOR and TELCO happens in the following way:

- Telephone calls is incoming
- As soon as the phone call is hooked up the listener hears the PGM signal (stand-by signal).
- To speak in private with TELCO using the DIRECTOR's microphone (internal microphone) the following settings are required:

TELCO = STOP
CUE TELCO = ON
TALK BACK TO TELCO 1 / 2 = ON

When the DIRECTOR switches ON the TELCO's CUE, the PGM signal does not change (PGM

atten.on telco Private = NONE).

When the DIRECTOR presses the TB switch, the listener can hear the signal from the internal microphone and the PGM decreased of 20 dB (Atten.on telco private and TB = -20dB)

The PRIVATE communication between DJ and TELCO takes place in the following way:

- Telephone calls is incoming
- As soon as the phone call is hooked up the listener hears the PGM signal (stand-by signal).
- To speak in private with TELCO using the DJ's microphone the following settings are required:

TELCO = STOP
CUE TELCO = ON
MIC DJ = OFF
MIC DJ TELCO PRIVATE = ON
MIC DJ TELCO 1 E 2 = ON

When the DIRECTOR switches ON the TELCO's CUE, the PGM signal does not change (PGM atten.on telco Private = NONE).

The signal of the DJ's microphone is sent only if the external TB is pressed (EXT TBK control on telco private = ON). In this way even the people inside the studio can speak dicrectly with TELCO through the ON AIR microphone.

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Technical Specification

MICROPHONE INPUT

Input configuration:	transformer balanced
Source Impedance:	200 Ω
Input Level Range:	Adjustable from -70 ÷ -40 dBu
Maximum Input Level:	-30 dBu
Phantom Supply:	42 Vdc selectable, with 3k3 c.c. protection
Connector:	XLR-type, Female, EMI suppressed Pin1 Ground, Pin2&3 transormer balanced, floating and symmetrical

MICROPHONE INSERT

Insert Output configuration:	Unbalanced
Insert Output Impedance:	100 Ω
Insert Output Level:	0 dBu (range ± 12dB)
Insert Input configuration:	Unbalanced
Insert Source Impedance:	10 KΩ
Insert Input Level:	0 dBu (range ± 12dB)
Connector:	DSUB 9 pole female

LINE INPUT

Input configuration:	Electronically balanced
Input Impedance:	>10 KΩ (600 Ω wired selectable)
Input Level:	0 dBu (Adjustable ± 12 dB)
Headroom:	+ 8 dBu
Connector:	DSUB 9 pole female

EXTERNAL INPUT

Input configuration:	Electronically balanced
Input Impedance:	>10 KΩ (600 Ω wired selectable)
Input Level:	0 dBu (Adjustable ± 12 dB)
Headroom:	+ 8 dBu
Connector:	DSUB 9 pole female

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ANALOG OUTPUT

Output configuration:	Electronically balanced
Output Impedance:	100 Ω
Output Level:	0 dBu (Adjustable ± 12 dB)
Connector:	DSUB 15 pole female

DIGITAL INPUT

Input configuration:	Professional Balanced AES EBU standard
Input Impedance:	110 Ω shielded twisted pair
Input Sample rate:	32, 44.1, 48, 96 KHz (Auto Detect)
Connector:	DSUB 9 pole female

DIGITAL OUTPUT

Output configuration:	Professional Balanced AES EBU standard
Output Impedance:	110 Ω shielded twisted pair
Output Sample rate:	32, 44.1, 48, 96 KHz Selectable*
Connector:	DSUB 9 pole female

* Telco 1 & Telco 2 Sample rate 48 KHz ONLY, no sync.

SYNCRONIZATIONS

Frame:	
Input / Output configuration:	Professional Balanced AES EBU standard
Input / Output Impedance:	110 Ω shielded twisted pair
Connector:	DSUB 9 pole female
Word Clock:	Greater than 600 Ω
Input / Output configuration:	Professional Balanced AES EBU standard
Input Impedance:	10 KΩ
Output Impedance:	100 Ω
Connector:	BNC grounded

LOGIC INPUT

Configuration:	Opto-coupled (with internally 330 ohm protection)
Max Voltage input:	5 Vdc (for 10 mA input)

Max Reverse Voltage:	5 Vdc
Connector:	DSUB 37 pole female

LOGIC OUTPUT

Configuration:	Optic solid state relay
Max Voltage:	50 Vdc/ac
Max Current:	100 mA
Connector:	DSUB 37 pole female

STUDIO I/O

Studio Logic Input

Configuration	Opto-coupled (with internally 330 ohm protection)
Max Voltage input	5 Vdc (for 10 mA input)
Max Reverse Voltage	5 Vdc

Studio Logic Output

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

ROOM I/O

Room Logic Output

Configuration	Optic solid state relay
Max Voltage	50 Vdc/ac
Max Current	100 mA
Connector	DSUB 9 pole female

CRT

Configuration Type	VGA 800x600 (V 72 Hz, H 53,3 KHz)
Connector	High density DSUB 15 pole female

RS232

Configuration Type	RS232 standard DCE
Connector	DSUB 9 pole female

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LAN

Configuration Type	ETHERNET 10 Base T
Connector	RJ 45

KEYBOARD & MOUSE

Configuration Type	Standard
Connector	PS2

HEAD PHONES

Configuration Type	Stereo unbalanced
Output Impedance	50 Ω
Connector	JACK 6 mm

GENERAL SPECIFICATIONS

FREQUENCY RESPONSE

Microphone Input to program output	20 Hz ÷ 20 KHz ±0.3 dB
Line Input to program output	30 Hz ÷ 20 KHz ±0.3 dB

NOISE

Micro Amplifier -130 dBu RMS equivalent input noise, 200 Ω source, 20 KHz bandwidth

Line Amplifier -120 dBu RMS equivalent input noise, 600 Ω source, 20 KHz bandwidth

Output Noise with: -80 dBu, reference + 6 dB, 200 Ω source, 20 KHz bandwidth
one microphone channel ON, fader at 0 dB, input sensitivity at –50 dB

Output Noise with: -82 dBu, reference + 6 dB, 200 Ω source, 20 KHz bandwidth
one line channel ON, fader at 0 dB, input sensitivity at –50 dB

Output Noise with: -88 dBu, reference + 6 dB, 20 KHz bandwidth
no input channel ON

DISTORTION T.H.D.

Microphone Input to program output:	Less than 0.055 %
Line Input to program output:	Less than 0.022 %

ASSIGN ISOLATION

1 KHz	better than -120 dB
20 KHz	-80 dB

STEREO SEPARATION

1 KHz	-85 dB
20 KHz	-82 dB

CMRR (Line Input)

60 Hz	-80 dB
1 KHz	-80 dB
20 KHz	-75 dB

GROUP DELAY

Analog Input to Analog Output	1,75 mSec
Analog Input to Digital Output	3 mSec
Digital Input to Analog Output	2,8 mSec
Digital Input to Digital Output	4 mSec

GENERAL DATA

Power Supply	115 / 230 VAC 50 – 60 Hz
Power Requirement	60 VA
Operating Temperature	0 ÷ 50 °C

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