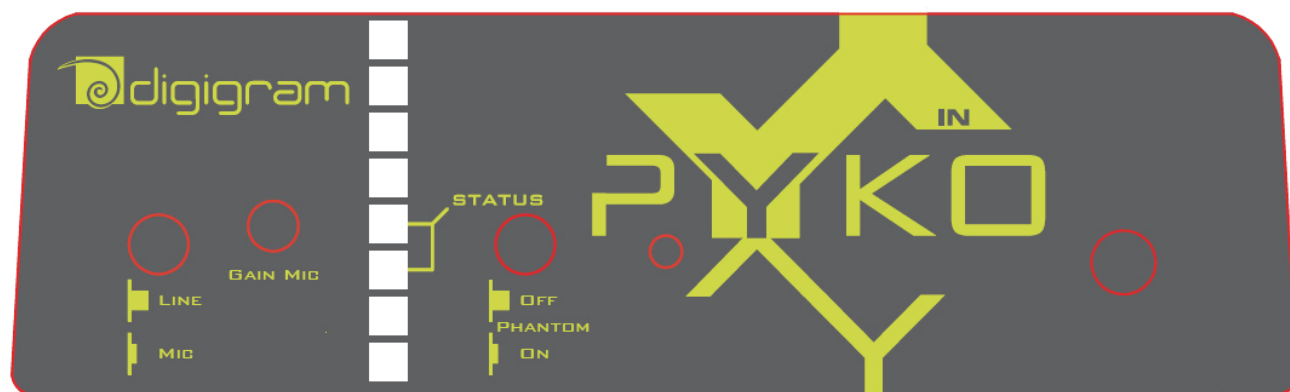


PYKO-in

Professional IP ⇔ Audio Endpoint



User manual

Important Safety Information read carefully before using this equipment!

Follow these instructions and keep them in a safe place! Keep in mind that damages due to failure to observe the instructions contained in this manual are not covered by warranty.

Instructions importantes de sécurité lire soigneusement avant d'utiliser l'équipement!

Lisez et suivez ces instructions. Conservez les pour consultation ultérieure! Les dommages dus au non-respect des instructions contenues dans ce manuel ne sont pas couverts par la garantie.

Wichtige Sicherheitshinweise vor Inbetriebnahme des Gerätes sorgfältig lesen!

Befolgen Sie die Anweisungen und bewahren Sie sie für spätere Fragen auf! Bei Schäden, die durch Nichtbeachten dieser Bedienungsanleitung verursacht werden, erlischt der Garantieanspruch!



Throughout this manual, the lightning bolt triangle is used to alert the user to the risk of electric shock.



The exclamation point triangle is used to alert the user to important operating or maintenance instructions.



Do Not Open the Cabinet

There are no user-serviceable components inside this product. Opening the cabinet may present a shock hazard, and any modification to the product will void your warranty. If it is necessary to open the device for maintenance or advanced configuration purposes, this is to be done by qualified personnel only after disconnecting the power cord and network cables!



Power supply

The device is to be connected only to a power supply as specified in this manual and marked on the equipment.

This equipment must be earthed!

Do not block any of the ventilation openings!

Humidity

To reduce the risk of fire or shock, do not expose this device to rain or moisture. Do not place objects filled with liquid on this device.

Installation Location

To ensure proper operation and to avoid safety hazards, the device must be installed in a 19" rack mount chassis. The electrical installation of the building should dispose of easily accessible disconnecting means in the immediate vicinity of the device.

If rack installation is not possible, place it on a firm and level surface. The use of a supply lead with a power plug respecting the legal standards in the country of use is obligatory. The plug shall be easily accessible in case of a problem.

Avoid installation in extremely hot or cold locations, or in an area that is exposed to direct sunlight or heating equipment. Avoid moist or humid locations.

Connection of this product to an IT power supply system is only in Norway.

Cleaning

Clean only with a soft, dry cloth. If necessary, after disconnecting the unit's cables, wipe it with a soft cloth dampened with mild soapy water, then with a fresh cloth with clean water. Wipe dry immediately with a dry cloth. NEVER use benzene, aerosol cleaners, thinner, alcohol or any other volatile cleaning agent. Do not use abrasive cleaners, which may damage the finish of metal or other parts.

Refer all servicing to qualified service personnel.

Servicing is required when the apparatus has been damaged in any way, such as power supply cord or plug is damaged, liquid has been spilled, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

Moving the device

Before moving the unit, be certain to disconnect any cables that connect with other components.



Ne pas ouvrir l'appareil

L'ouverture du coffret peut produire un risque de choc électrique, et toute modification du produit annule votre garantie. S'il est nécessaire d'ouvrir l'appareil pour l'entretien ou la configuration avancée, cela doit être fait par du personnel qualifié, après avoir débranché le cordon d'alimentation et les câbles réseaux!



Alimentation

Il est primordial de connecter l'appareil à une alimentation électrique telle que spécifiée dans ce manuel d'utilisateur et sur le matériel même.

Cet équipement doit être raccordé à la terre !

N'obstruer aucune ouverture de ventilation !

Humidité

Afin de réduire les risques de feu ou de choc, n'exposez pas cet appareil à la pluie ou l'humidité. Ne placez pas d'objet contenant un liquide sur l'appareil.

Installation, mise en place

Afin d'assurer le fonctionnement correct et de minimiser les risques potentiels liés à la sécurité, l'appareil doit être installé dans un chassis. Prévoir dans l'installation électrique du bâtiment un dispositif de sectionnement aisément accessible et à proximité immédiate de l'appareil.

Si l'installation dans une baie ne vous est pas possible, placez-le sur une surface solide et plane. L'utilisation d'un câble d'alimentation avec une fiche de prise de courant respectant les normes en vigueur dans le pays d'utilisation est obligatoire. De plus la fiche de prise de courant doit être aisément accessible en cas de problème.

Évitez une installation dans des endroits très chauds ou très froids ainsi que dans des lieux exposés directement au soleil. Évitez les lieux présentant un excès d'humidité.

Le raccordement de ce produit à un régime d'alimentation IT n'est possible qu'en Norvège.

Nettoyage

Nettoyez uniquement avec un chiffon doux et sec. Si nécessaire, après avoir débranché le cordon d'alimentation, essuyez-le avec un chiffon doux humidifié avec de l'eau savonneuse puis rincez-le à l'aide d'un chiffon propre et d'eau claire.

Séchez-le immédiatement avec un chiffon sec. N'utilisez JAMAIS d'essence, de nettoyants en aérosols, d'alcool ou tout autre agent nettoyant volatil. N'utilisez pas de produits nettoyants abrasifs qui pourraient endommager les finitions métalliques ou d'autres pièces.

Réparation

Lorsque l'appareil a été endommagé quelle qu'en soit la cause ou qu'il ne fonctionne pas normalement, toute réparation doit être effectuée par du personnel qualifié. Avant de transporter l'unité, assurez-vous d'avoir bien déconnecté le cordon d'alimentation ainsi que tous les câbles la reliant à d'autres appareils.



Gerät nicht öffnen

Öffnen des Geräts kann eine Gefährdung durch Stromschlag und Erlöschen der Garantie zur Folge haben. Reparaturarbeiten und Änderungen der Hardwarekonfiguration dürfen nur von qualifiziertem Personal nach Entfernen der Strom- und Netzkabel durchgeführt werden.



Stromversorgung

Das Gerät darf nur mit der in dieser Bedienungsanleitung und auf dem Gerät angegebenen Stromversorgung betrieben werden.

Erdung ist zu gewährleisten!

Belüftungsschlitze nicht verdecken!

Wasser und Feuchtigkeit

Um Brand- oder Stromschlagrisiken zu vermeiden, darf das Gerät nicht mit Feuchtigkeit in Berührung kommen.

Aufbau des Geräts

Um den einwandfreien Betrieb zu gewährleisten und Sicherheitsrisiken zu vermeiden, sollte das Gerät in einem 19-Zoll-Baugruppenrahmen montiert werden. Die elektrische Installation des Gebäudes sollte über einen leicht zugänglichen Trennschalter in unmittelbarer Nähe des Geräts verfügen. Nur wenn die Installation im Rack nicht möglich ist, stellen Sie das Gerät auf einen festen, waagerechten Untergrund.

Die Verwendung eines Anschlußkabels und eines Steckers, die die im Benutzungsland gültigen Normen erfüllen, ist obligatorisch. Des weiteren muß die Steckdose für einen eventuellen Problemfall leicht zugänglich sein.

Meiden Sie Standorte in der Nähe von Wärme- oder Feuchtigkeitsquellen sowie direkte Sonneneinstrahlung.

Anschluß dieses Produktes an eine spezielle IT-Stromversorgung ist nur in Norwegen genehmigt.

Reinigen des Geräts

Säubern Sie das Gerät nur mit einem weichen, trockenen Tuch. Bei Bedarf verwenden Sie ein mit mildem Seifenwasser befeuchtetes Tuch, nachdem Sie die Netzansteckdose aus der Steckdose gezogen haben, anschließend ein weiches, mit klarem Wasser befeuchtetes Tuch. Trocknen Sie das Gerät sofort im Anschluß. Keinesfalls Benzol, Verdünner oder sonstige starke Lösungsmittel oder Scheuerreiniger verwenden, da hierdurch das Gehäuse beschädigt werden könnte.

Lassen Sie etwaige Reparaturen nur von qualifizierten Fachleuten durchführen!

Sollten das Netzkabel oder der Netzstecker beschädigt sein, oder sollte das Gerät selbst beschädigt worden sein (z. B. durch Eindringen von Feuchtigkeit durch Fall auf den Boden), oder sollte es nicht ordnungsgemäß funktionieren oder eine deutliche Funktionsabweichung aufweisen, so ist es von qualifizierten Fachleuten zu reparieren.

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INFORMATION FOR THE USER

This equipment has been tested and found to comply with the limits for a CLASS B digital device, pursuant to Part 15 of the FCC Rules and with the following European and international Standards for:

In order to guarantee compliance with the above standards in an installation, the following must be done:

- the provided cables must not be modified.
- additional cables used must have their respective shield connected to each extremity.

The limits specified in the standards are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- * reorient or relocate the receiving antenna.
- * increase the separation between the equipment and the receiver.
- * connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- * consult the dealer or an experienced audio/television technician for help.

Note: *Connecting this device to peripheral devices that do not comply with CLASS B requirements or using an unshielded peripheral data cable could also result in harmful interference to radio or television reception. The user is cautioned that any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment. To ensure that the use of this product does not contribute to interference, it is necessary to use shielded I/O cables.*

This card has been tested and found to comply with the following standards:

- International: CISPR22 (2005) Class B.
- Europe: EMC 2004/108/CE specifications.
- United States: FCC Rules-Part 15-Class B (digital device).

In order to guarantee compliance with the above standards in an installation, the following must be done:

- the provided cable must not be modified.
- additional cables used must have their respective shield connected to each extremity.

CONTENTS OF THIS PACKAGE

The package consists of the following components:

- a PYKO-in device
- a counterpart for the power connector

Also available (optionally):

- Power supply with cable and connector mounted.
- Adaptor for mounting the PYKO-in on a DIN rail

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You have just acquired a Digigram IP ⇔ audio bridge and we congratulate you!

PYKO-in allows you to draw the most from an IP network in order to set up professional audio installations.

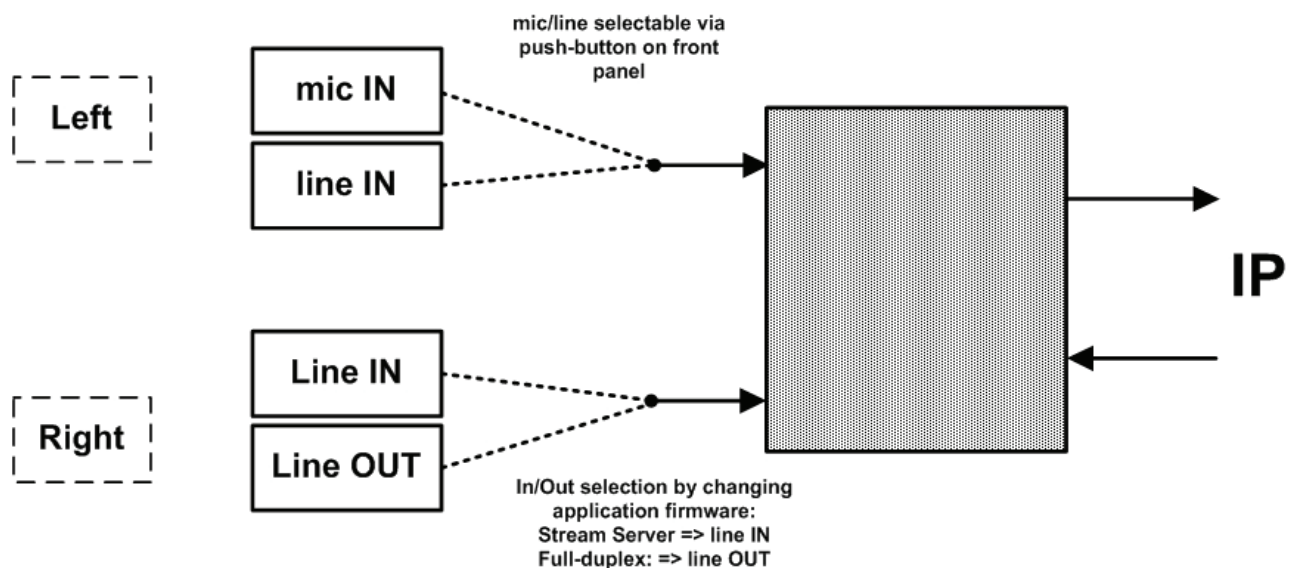
Three different firmware applications make PYKO-in a flexible solution that can easily keep up as your system evolves.

The manual at hand will guide you through installation, configuration and use. For any software related issue, please refer to the specific documentation provided in its on-line help.

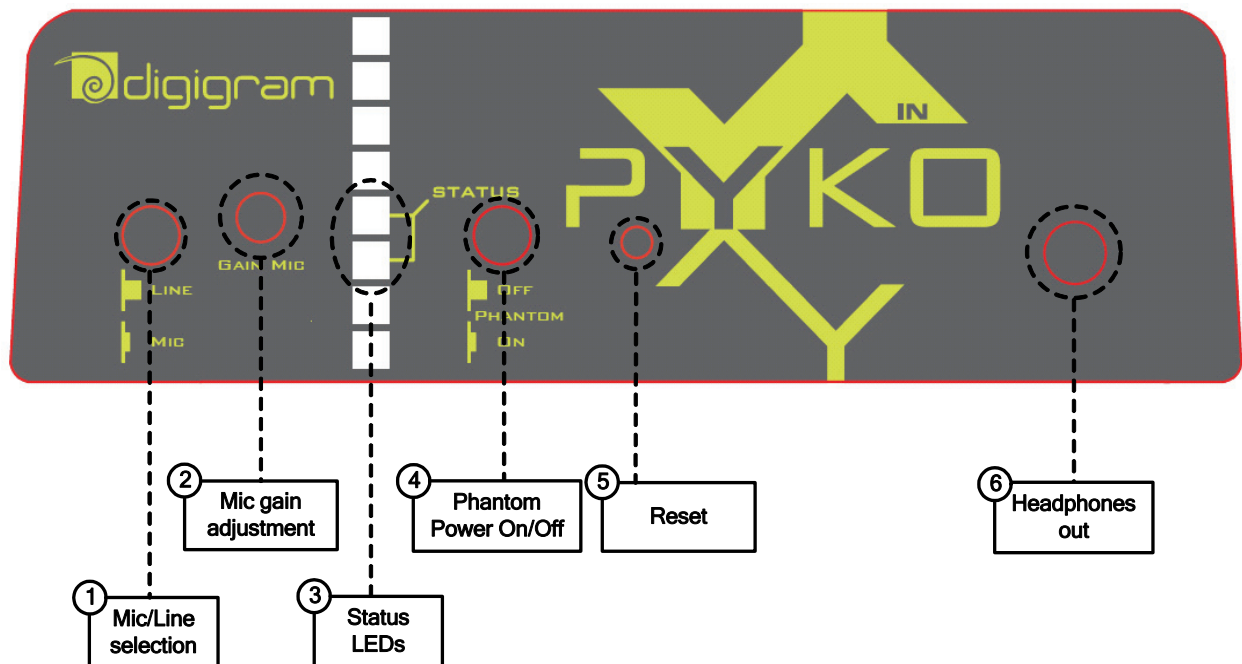
For more information on PYKO applications, please refer to the document 'Audio system cookbook', available on our Web site.

KEY FEATURES

- 1 stereo or 1 mono input and one mono output, 1 mic input (see schematic underneath)*
- 1 RJ45 port
- 1 headphones output
- 4/4 GPIOs on terminal block
- 1 RS232 port
- 1/3" 1U rack enclosure
- Remote management through .html pages, 'Audio Manager' software or 'EScontrol' software (in EtherSound mode)



The PYKO-in front panel



1. Mic/line selection

Push-button allowing to switch the input signal between microphone and line.

2. Mic gain setting

Screw allowing to adjust the mic input gain using a flat screwdriver.

3. LEDs

Three electroluminescent diodes indicate the network activity and presence and mode of an audio stream.

- Two electroluminescent diodes labeled 'STATUS' indicate the network activity and the presence of an audio stream.
- A third LED above indicates - when lit - that the audio stream is in full-duplex mode.

4. Phantom power

Push-button allowing to enable/disable 12 V phantom power.

5. Reset button

Press this button briefly to reset your PYKO.

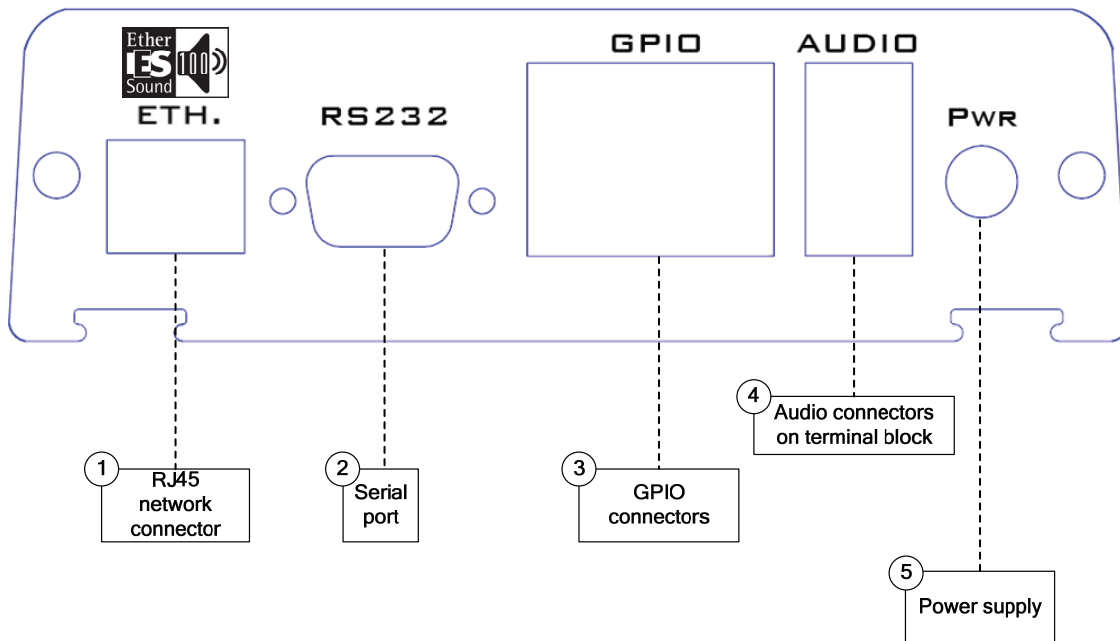
If you press it until the LED blinks (approximately 5 seconds), PYKO is reset to factory configuration, i.e. to 'Stream Server' mode, IP address 192.168.0.100, DHCP=OFF, and the UDP/TCP ports to the default values 40002 respectively 40004.

6. Headphones out (mini jack)

At start-up, PYKO-in announces its IP address on this output.

- With the 'Full-duplex' firmware application, it plays the audio in parallel of line output.
- With the 'Stream Server' firmware application, this output is not used.

The PYKO-in back panel



1. RJ45 network connector

RJ45 for a network connection in 10/100 Mbps half-/full-duplex.

2. Serial port

RS232 interface on DB9 (see Appendix F, Serial port).

3. GPIO connectors

These terminal blocks allow setup of external control and monitoring devices through configurable and protected General Purpose Inputs and Outputs (cf. Appendix, management of the GPIOs).

4. Audio connectors

These terminal blocks allow to connect the audio inputs and outputs. (cf. Appendix D, Audio connectors).

5. Power supply

24 VDC with plug to screw.



INSTALLATION

Connecting your PYKO-in device

It is recommended to establish all connections before powering the device up.

Power supply

Before plugging the power cord, make sure it is not damaged:

Just like for any other audio system, power the individual devices up following the audio path and power down in the opposite direction.

Do not allow anything to rest on the power cable. Keep the power cable away from where people could trip over it.

Set-up

- Use an Ethernet cable to connect your PYKO-in to the network through its RJ45 port (labeled 'ETH.' on the back panel). To connect your PYKO-in directly to your computer, use a crossover cable.
- Plug your headphones (front panel)
- *Prepare pen and paper in order to write the IP address down, which will be announced over the headphones output.*
- Connect the electric cable to the plug labeled 'PWR' on the back panel and to the power outlet

Audio

The pinout used on the XLRs is standard: pin 1 carries the signal ground, pin 2 carries the positive signal ("hot", +) and pin 3 carries the negative signal ("cold", -).

Configuration

You can use PYKO-in along with Audio Manager, in stand-alone or in EtherSound mode.

Firmware update

Digram provides a firmware (compound.bin) compatible PYKO-in that is installed by default (factory configuration).

Digram may decide to publish updates of the embedded firmware. It may then become necessary to upgrade your devices. In this case, please connect to the corresponding page on www.digram.com/drivers/index.php and download the most recent version. Then, go to the <Tools>, <Update> section of the PYKO-in html page, click '**Browse**' to indicate the location of the downloaded file, then the '**Upload**' button. When the message 'compound.bin successfully loaded' is displayed, click onto the link '**Click on update before updating the next component or unplug the power supply to reboot the device**' in the message, then onto the '**Reboot**' button to finish the update, or, alternatively, disconnect then re-plug the power cord.

MODES OF OPERATION

PYKO-in can embed any of the three firmware applications:

- **“Stream server”:**
- With the ‘Stream Server’ application enabled, PYKO-in reproduces the signal it receives on its analogical input as one or several IP streams (mono or stereo).
- **“Full-duplex”:** The ‘Full-duplex’ firmware application (selectable on the html pages) allows managing the emission of a mono IP stream and the reception of a mono IP stream, thus making it possible to use an analog mono input and an analog mono output simultaneously, for example for intercom applications.
- **“Play-out”:** The Play-out firmware application lets your PYKO-in decode a mono stream. This mode is rather an ‘emergency’ mode in case you don’t have a PYKO-out at hand. For more detail on this mode, see the PYKO-out manual.

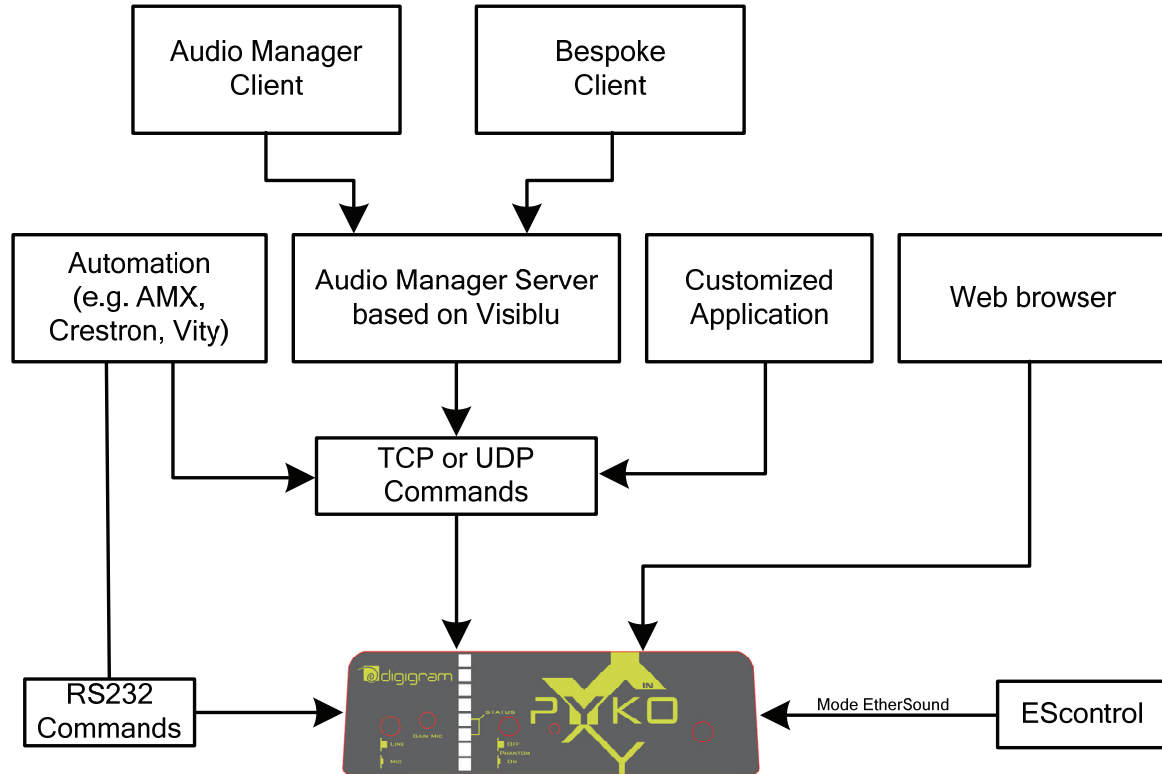
Particular mode:

- **EtherSound:** In EtherSound mode, the control of PYKO-in is done through EScontrol. Access to the web pages is no longer possible.
Note: *To return to another mode of operation, please press the ‘Reset’ button > 5 sec in order to re-start PYKO-in factory configuration. Now you have again access to the embedded html pages where you can select the required firmware application and configure your PYKO-in.*

In factory configuration, PYKO-in is shipped with the ‘Stream Server’ firmware enabled.

MANAGING PYKO-IN

Depending on your needs, there are several ways of configuring and controlling PYKO-in.



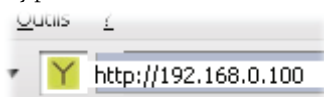
Configuration

PYKO-in embeds a web server that enables you to control the PYKO through your favorite Internet browser and to select the firmware application that best meets your needs.

- Put your headphones on. At start-up, PYKO will announce its IP address over the headphones output – write this address down!

Note: PYKO-in factory setting is IP address configured at 192.168.0.100.

- Open your web browser.
- Type the PYKO-in IP address into the address bar and hit the 'Enter' key.



Using PYKO-in with Audio Manager

If you use your PYKOs with Audio Manager, you will first have to either assign an IP address through the web pages or turn the DHCP on (Audio Manager will then automatically assign an IP address). Audio Manager Server will detect this address and allow the Audio Manager Client to configure it.

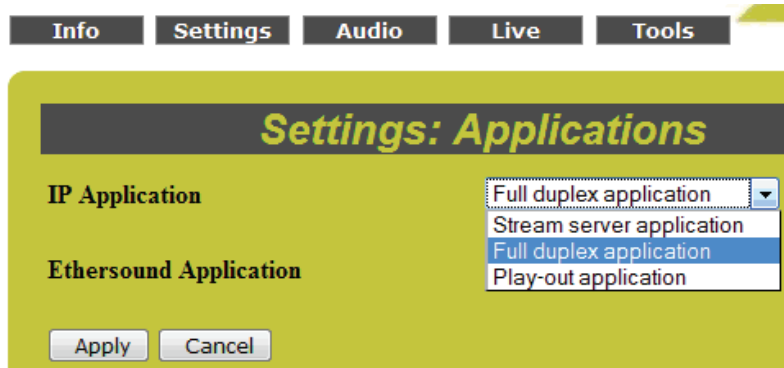
To be detected by Audio Manager, the TCP control port has to be set to “40002”, the UDP listening port to “40004”. These are also the values defined in the factory configuration.

Nonetheless, you may decide that Audio Manager is to control PYKO-in only in part. In this case, use the PYKO-in html pages to configure the device accordingly (cf. on-line help of the pages).

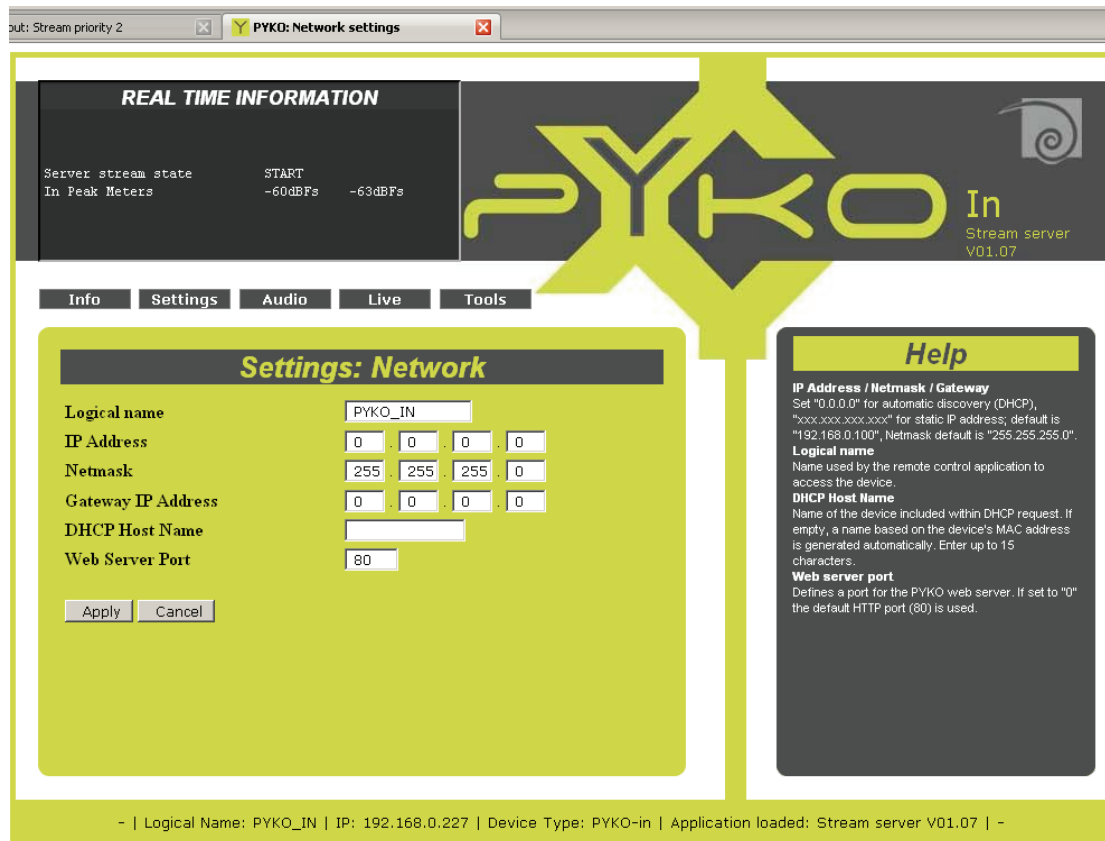
For more details on managing PYKO through Audio Manager, please refer to its on line help.

PYKO-in in ‘stand-alone’ mode

- Select the application firmware that best meets your requirements (see above).



- You can now visualize the Web pages that enable you to parameterize the device.



Audio configuration

With the 'Stream Server' firmware

It is possible to transport an IP stream from a PYKO-in towards different destinations:

- 6 in MP3 format
- 4 in PCM format

Just configure a destination IP address and a corresponding port for each destination.

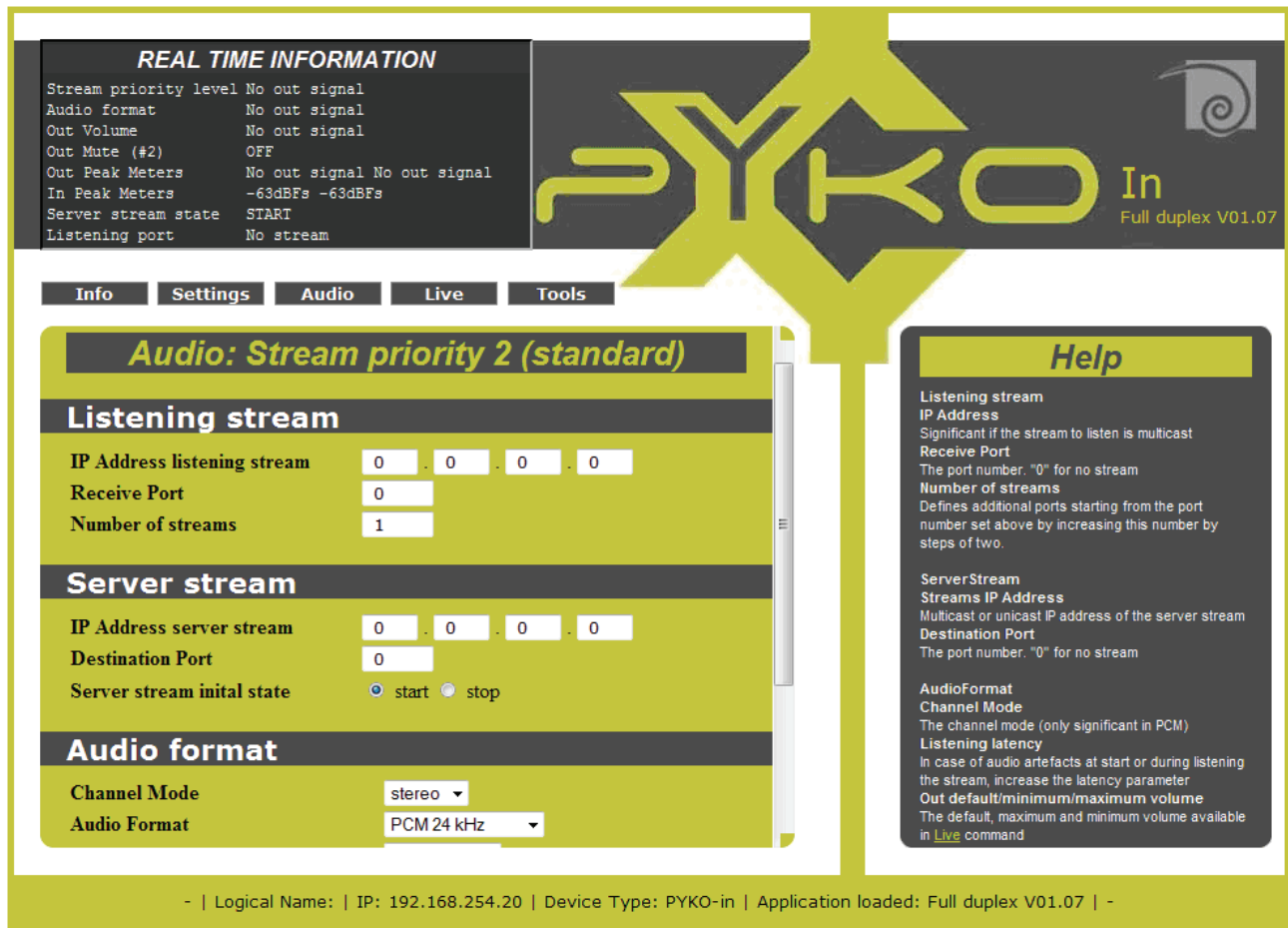
The screenshot shows the PYKO-in Stream Server V01.07 web interface. The top bar displays 'REAL TIME INFORMATION' with 'Server stream state' as 'START' and 'In Peak Meters' as '-63dBfs -63dBfs'. The main navigation menu includes 'Info', 'Settings', 'Audio', 'Live', and 'Tools'. The 'Audio: stream configuration' page is active, showing settings for 'Audio Format' (mp3 48 kHz), 'mp3 encoding quality' (4), and 'Channel Mode' (stereo). It also includes 'Server streams initial state' (start) and four streams with their respective IP addresses and destination ports. A 'Help' sidebar on the right provides details for 'Audio Format', 'mp3 Encoding Quality', 'Channel Mode', 'Streams IP Address', and 'Destination Port'. The footer shows the logical name 'PYKO_IN', IP '192.168.0.227', device type 'PYKO-in', and application 'Stream server V01.07'.

Stream	IP Address	Destination Port
Stream 1	192.168.0.221	5004
Stream 2	0.0.0.0	0
Stream 3	0.0.0.0	0
Stream 4	0.0.0.0	0

With the Full-duplex firmware

In full-duplex mode, you will have to configure a mono input and a mono output.

To do so, go to the audio page 'Audio: Stream priority 2':



REAL TIME INFORMATION

Stream priority level	No out signal
Audio format	No out signal
Out Volume	No out signal
Out Mute (#2)	OFF
Out Peak Meters	No out signal No out signal
In Peak Meters	-63dBfs -63dBfs
Server stream state	START
Listening port	No stream

Audio: Stream priority 2 (standard)

Listening stream

IP Address listening stream: 0 . 0 . 0 . 0

Receive Port: 0

Number of streams: 1

Server stream

IP Address server stream: 0 . 0 . 0 . 0

Destination Port: 0

Server stream initial state: ☒ start ☐ stop

Audio format

Channel Mode: stereo

Audio Format: PCM 24 kHz

Help

Listening stream
IP Address
 Significant if the stream to listen is multicast
Receive Port
 The port number. "0" for no stream
Number of streams
 Defines additional ports starting from the port number set above by increasing this number by steps of two.

ServerStream
Streams IP Address
 Multicast or unicast IP address of the server stream
Destination Port
 The port number. "0" for no stream

AudioFormat
Channel Mode
 The channel mode (only significant in PCM)
Listening latency
 In case of audio artefacts at start or during listening the stream, increase the latency parameter
Out default/minimum/maximum volume
 The default, maximum and minimum volume available in [Live](#) command

- | Logical Name: | IP: 192.168.254.20 | Device Type: PYKO-in | Application loaded: Full duplex V01.07 | -

Configure the IP stream to be received (Listening stream) and the IP stream to be sent (Server stream).

PYKO-in is now configured for a full-duplex communication.

In Audio Manager mode, the Audio Manager stream will automatically be set to level 2.

It is also possible to define a priority stream via the page 'Audio: Stream priority 1'.

A full-duplex communication can then be interrupted by this priority stream for, e.g., an alarm message.

The screenshot displays the PYKO-in web interface. At the top, there's a 'REAL TIME INFORMATION' section with a table of status: Stream priority level (No out signal), Audio format (No out signal), Out Volume (No out signal), Out Mute (#2) (OFF), Out Peak Meters (No out signal No out signal), In Peak Meters (-60dBfs -63dBfs), Server stream state (START), and Listening port (No stream). To the right is a large PYKO logo and the text 'In Full duplex V01.07'. Below this is a navigation bar with 'Info', 'Settings', 'Audio', 'Live', and 'Tools'. The 'Audio' section is active, showing 'Audio: Stream priority 1 (highest)'. It contains fields for IP Address (0.0.0.0), Receive Port (0), Channel Mode (not applicable), Audio Format (mp3), Latency (10 Highest), Default volume (-12dB), Minimum volume (-40dB), and Maximum volume (0dB). There are 'Apply' and 'Cancel' buttons. To the right is a 'Help' section with definitions for IP Address, Receive Port, Channel Mode, Audio Format, Latency, Default volume, Minimum volume, and Maximum volume. At the bottom, a status bar shows: '- | Logical Name: | IP: 192.168.254.20 | Device Type: PYKO-in | Application loaded: Full duplex V01.07 | -'.

For more details on parameterizing your PYKO-in in 'stand-alone' mode, please refer to on-line help of the html configuration pages.

With the 'Play-out' firmware

For the use of PYKO-in 'Play-out' mode, please refer to the PYKO-out manual and to the on-line help of the application firmware. Note, however, that with this firmware, the outputs of a PYKO-in are managed in mono mode.

Using PYKO-in with EtherSound

PYKO-in is also capable of decoding EtherSound 100/spkr (www.ethersound.com). This is an exclusive mode of PYKO-in. In this mode, PYKO-in can decode **ONE** EtherSound mono stream.

As default setting ex factory, the equipment works in IP mode. Switching from IP mode to EtherSound is done through the Web pages by selecting the EtherSound mode.

In EtherSound mode, the control of PYKO-in is done through EScontrol. Access to the web pages is no longer possible.

To switch back to IP mode, PYKO-in needs to be reset (press the 'Reset' button for at least five seconds). PYKO-in will re-boot with the default factory settings.

Note: each time PYKO-in is switched from one mode to another, the previous settings are lost, the device reboots in factory configuration.

GPIO

PYKO-in is delivered with four GPIs and four GPOs on terminal block connectors; the counterparts are provided. For details see Appendix D.

GPI

The PYKO-in GPIs are compatible TTL 5 V.

A GPI must maintain its state for at least 20 ms.

The GPIs can have either local action or a distant action by TCP tunneling.

For the local actions, you can choose:

- Whether it will take place on rising or falling edge
- To start a stream
- To stop a stream

For the TCP tunneling:

- The changes of a GPI state are transmitted through TCP if an application is connected. This information is received either by Audio Manager or by another application, but it cannot be received directly by another PYKO-in.
- TCP connection is required by Audio Manager (PYKO-in is used as server). To establish the connection, the listening port has to be configured by html page.
- The overall latency of the GPI signal transfer via Audio Manager to the destination GPO is inferior to 100 ms.

GPO

The PYKO-in GPOs are relay outputs.

It is possible to configure through the web page whether the value at start-up of each GPO is set to '0' or to '1'.

The GPO can be configured by TCP protocol or from an application.

SERIAL PORT (RS232 ON DB9)

PYKO-in provides an RS232 serial port on a male DB-9 connector on its back panel.

The RS232 can be used to control the PYKO through, e. g. Vity, AMX or Crestron.

It is possible to use the RS232 in gateway mode, in multicast, and in multi-destination (up to 4 destinations)

Parameter setting of the tunneling is done from the PYKO-in html pages.

For the pinout, please refer to the appendix F.

Audio format

PYKO-in can encode and decode various audio formats, depending on the embedded firmware (see appendix A).

SPECIFICATIONS

Configuration

Size	140 mm x 41 mm x 145 mm (1/3 1U rack)
Power supply	{0><}100{>24 VDC, +/- 20%<0} WARNING Do not open the power supply module. It contains hazardous voltages. There are no user-serviceable parts inside.
Temp / humidity (non-condensing) Operating: Storage:	0 °C – 55 °C / 0% - 70% -5 °C – 70 °C / 0% - 95%
Power requirements at 24 V	0.4 A
Net weight	0,477 kg (~1.05 lb)

Inputs

Mode	Stereo input (‘Stream Server’)	Full-duplex
Analog line inputs	1 stereo	1 mono
Ic input with switchable 12 V phantom power	1 (left)	1 (left)
Maximum input level/impedance	+4 dBu/+18 dBu / >10 kΩ	
Frequency response	20 Hz – 20 kHz : 0/-2 dB	
THD + noise, 1 kHz at --1 dBfs	20 Hz – 20 kHz : <-84 dB	
Signal to noise ratio	20 Hz – 20 kHz : <-98 dB	
Adjustable mic gain	0 - 39 dB	
Maximum mic input level/impedance	-2dBu / >10 kΩ	
Equivalent Input Noise, A/D-D/A at 48kHz, G=39 dB, Z=200 Ω	<-115 dBm	

Outputs

Mode	Stereo input (‘Stream Server’)	Full-duplex
Analog line outputs	-	1 mono
Maximum output level/impedance		+4 dBu/+18 dBu / <100 Ω
Frequency response		20 Hz – 20 kHz : 0/-2 dB
THD + noise, 1 kHz at --2 dBfs		20 Hz – 20 kHz : <-84 dB
Signal to noise ratio		20 Hz – 20 kHz : <-98 dB
Headphones out	1 on Jack (3,5 mm)	

Connectivity

Audio	2x3 pins on terminal block
Ethernet port	RJ45 10/100-bit.
GPIO	4 GPIOs compatible TTL 4 relay GPOs 2x8 pins on terminal block
Serial port	1 RS232 on DB9

Software, formats, protocols

Stream format	IP (RTP, SHOUTcast, IceCast)*
Audio formats	mp3 (variable bit rate up to 192 kBit/s) G.711 (μ Law/aLaw at 8 kHz) PCM (16 bit at 8 up to 48 kHz)
Network protocols	Audio-Manager, html pages via embedded web server http web server: personalized web interface for a flexible management TCP/UDP commands to enable PYKO management over the network SNMP: enables PYKO to be managed over the network in very large systems DHCP, DNS, IGMP

* en fonction du micrologiciel (firmware) utilisé

APPENDIX A: FIRMWARE

Digigram provides two PYKO-in compatible applications in one and the same firmware (compound.bin). 'Stream Server' and 'Full-duplex'.

Firmware description

Firmware	Stream server	Full-duplex
Audio	1 stereo input	1 mono input and 1 mono output
Management through Audio Manager	•	•
Audio formats		
MP3 16 to 48 kHz on RTP	Encoding	Decoding for stream priority 1
PCM (16bit) 8 to 32 kHz on RTP	Encoding	Encoding/decoding up to 24 kHz
PCM (16bit) 44,1 to 48 kHz on RTP	Encoding	Decoding for stream priority 1
G711 on RTP	Encoding	Encoding/decoding
Shoutcast/Icecast		
EtherSound	Firmware independent / Exclusively mono	
GPI management	•	•
GPO management	•	•
FD Serial Link management (RS232)	•	•
Multicast	Tx	Tx/Rx
IGMP	•	•
SNMP	•	•
Priority levels		2

APPENDIX B: INPUT/OUTPUT LEVEL SELECTION

These settings shall be executed by qualified personnel only!

Tools required:

- a #1 Pozidriv screwdriver 
- an ESD-preventive wrist strap

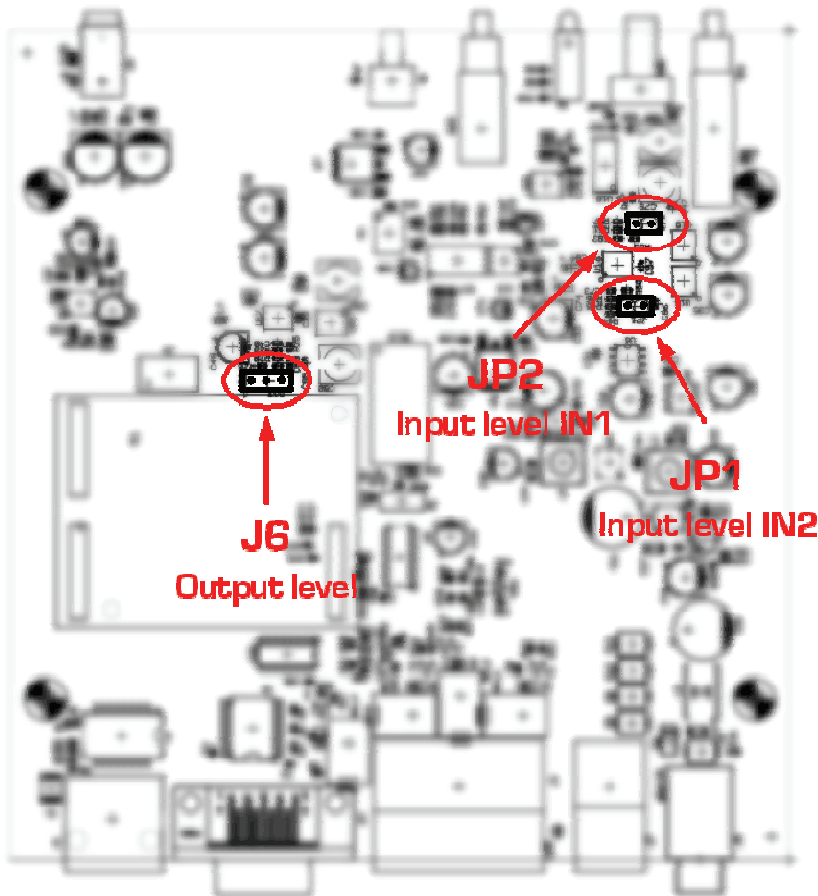
Electrostatic discharge (ESD) can damage several components on the board. To avoid such damage in handling the board, take the following precautions:

Bring the device and everything that contacts it to ground potential by providing a conductive surface and discharge paths. As a minimum, observe these precautions:

- Disconnect all power and signal sources.
- Place the device on a grounded conductive work surface.
- Ground yourself via a grounding wrist strap or by holding a grounded object.
- Ground any tools that will contact the device.
- Unscrew the two Pozidriv screws counterclockwise and open the cabinet. 

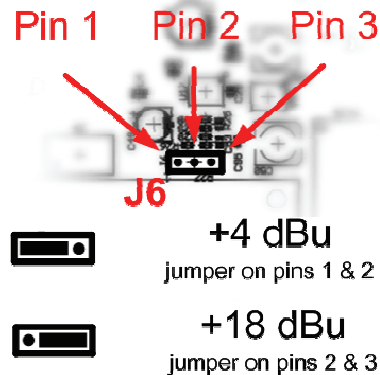
Jumper position on motherboard

Front panel



Back panel

Nominal output level



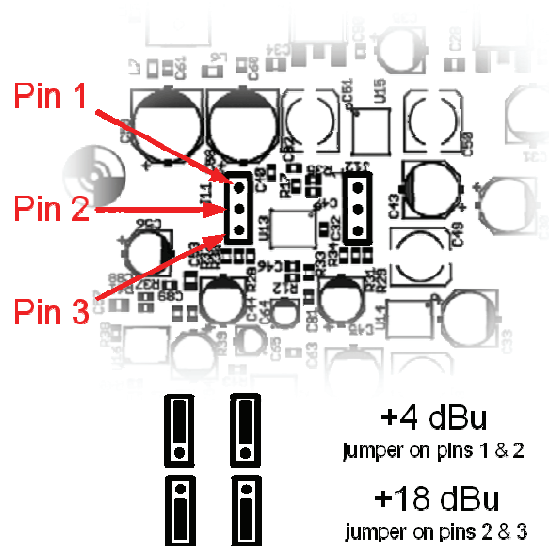
Jumper positioning

This setting defines whether the nominal level of the analog signals is either +18 dBu or +4 dBu (Professional nominal level).

Default factory setting is +18 dBu.

The settings described above act upon the nominal output level. Having located the pair to modify in the overview picture, set the jumpers according to the above illustrations to match the requirements of your system.

Nominal input level



Jumper positioning

This setting defines whether the nominal level of the analog signals is either +18 dBu or +4 dBu (Professional nominal level).

Default factory setting is +18 dBu for both inputs.

The settings described above act upon the nominal input level. Having located the pair to modify in the overview picture, set the jumpers according to the above illustrations to match the requirements of your system.

APPENDIX C: RTP FORMAT

An audio stream encoder must respect the size and the *payload* type described underneath.

RTP frame size

The maximum payload size in bytes for the encoder can be calculated from the formula:

$$\text{Min}(1300, 20 \cdot \text{chans} \cdot \text{Bps} \cdot \text{samplerate} / 1000)$$

where chans is the number of channels, bps is the number of bytes per sample and samplerate is the sampling rate in Hertz.

The maximum payload size for MP3 is 1400 bytes.

RTP payload types

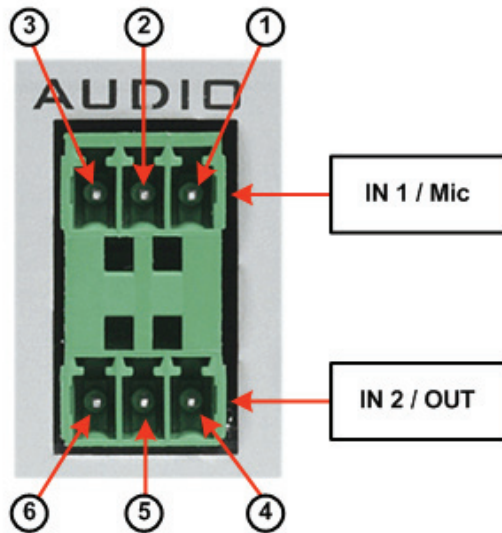
The following table shows the defined RTP payload types that the encoder must respect.

RTP payload type	Audio formats
0	μ-Law, 8bit, mono, 8kHz
8	A-Law, 8bit, mono, 8kHz
10	PCM, 16bit, MSB first, signed, 44.1 kHz stereo, left channel first
11	PCM, 16bit, MSB first, signed, 44.1 kHz mono
14	MPEG audio
96	PCM ,16bit, MSB first, signed, 8 kHz mono
99	PCM, 16bit, MSB first, signed, 24 kHz mono
102	PCM, 16bit, MSB first, signed, 32 kHz mono reserved
103	PCM 16bit, MSB first, signed, 48 kHz stereo, left channel first
111	PCM ,16bit, MSB first, signed, 12 kHz mono
127	Other formats

Payload types 0, 8, 10, 11 and 14 are defined by the RTP standard. Digigram defines assignment for payload types 96 to 127 (dynamic payload types) in the above tables.

APPENDIX D: AUDIO CONNECTORS

The audio inputs/outputs of PYKO-in come on a terminal block connector with two lines of three pins each three points (= two counterparts).

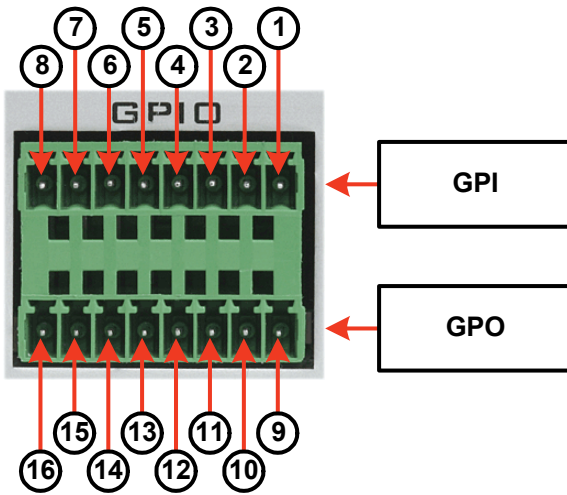


Pinout

Pin	Stream server	Full-duplex
1	GND	GND
2	IN 1- / Mic	IN- / Mic
3	IN 1+ / Mic	IN+ / Mic
4	GND	GND
5	IN 2-	OUT-
6	IN 2+	OUT+

APPENDIX E: GPIO CONNECTORS

PYKO-in provides four TTL 5 V compatible GPIs and four relay GPOs. The counterparts are provided.



GPI pinout

Pin	8	7	6	5	4	3	2	1
Signal	IN4	GND	IN3	GND	IN2	GND	IN1	GND

GPO pinout

Pin	16, 15	14, 13	12, 11	10, 9
Signal	OUT4	OUT3	OUT2	OUT1

General Purpose Inputs (GPIs)

The state of a GPI can be either “1” or “0”. It is read at “0” as soon as it is connected to the ground (GND). Otherwise it is read at “1”.

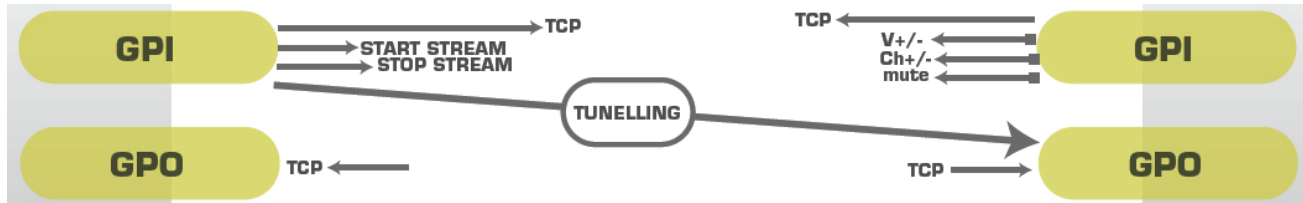
Note: Each GPI can receive an external command contact.

General Purpose Outputs (GPOs)

The PYKO-in GPOs are relay outputs. They feature two pins each and are all configured the same way. Pins 9 & 10 belong to GPO # 1, 11 & 12 to GPO # 2, 13 & 14 to GPO # 3, and 15 & 16 to GPO #4.

If written at “1”, the GPO closes the linked open collector. If written at “0”, the GPO opens the linked open collector.

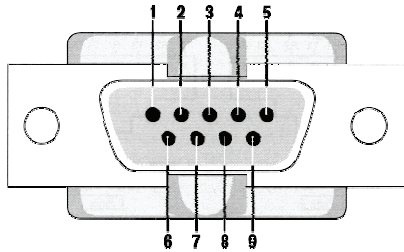
GPIOs can be used for tunneling from one PYKO towards another (GPIIn-> GPOn).



GPO relay specifications

Maximum power switching capability	10 W
Maximum switching current	1 A _{DC}
Maximum carrying current	1 A _{DC}
Maximum switching voltage	125 V _{AC} /60 V _{DC}
Typical life expectancy (switching max power)	10 ⁶ operations

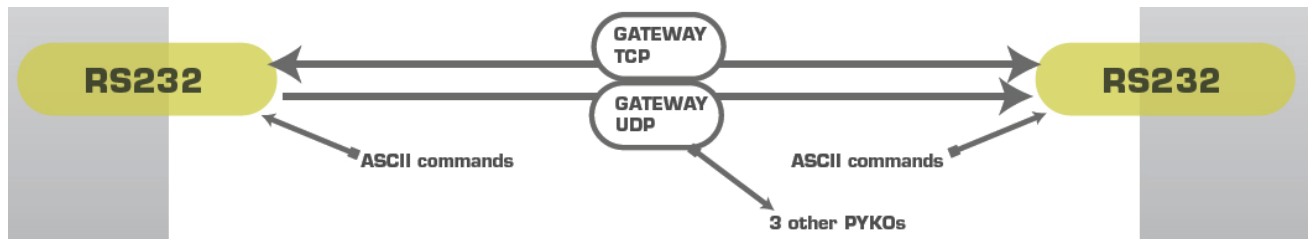
APPENDIX F: SERIAL PORT (RS232 ON DB9)



Pin	Description
1	not connected
2	RxD (received data)
3	TxD (transmitted data)
4	not connected
5	signal ground
6	not connected
7	RTS (request to send)
8	CTS (clear to send)
9	not connected

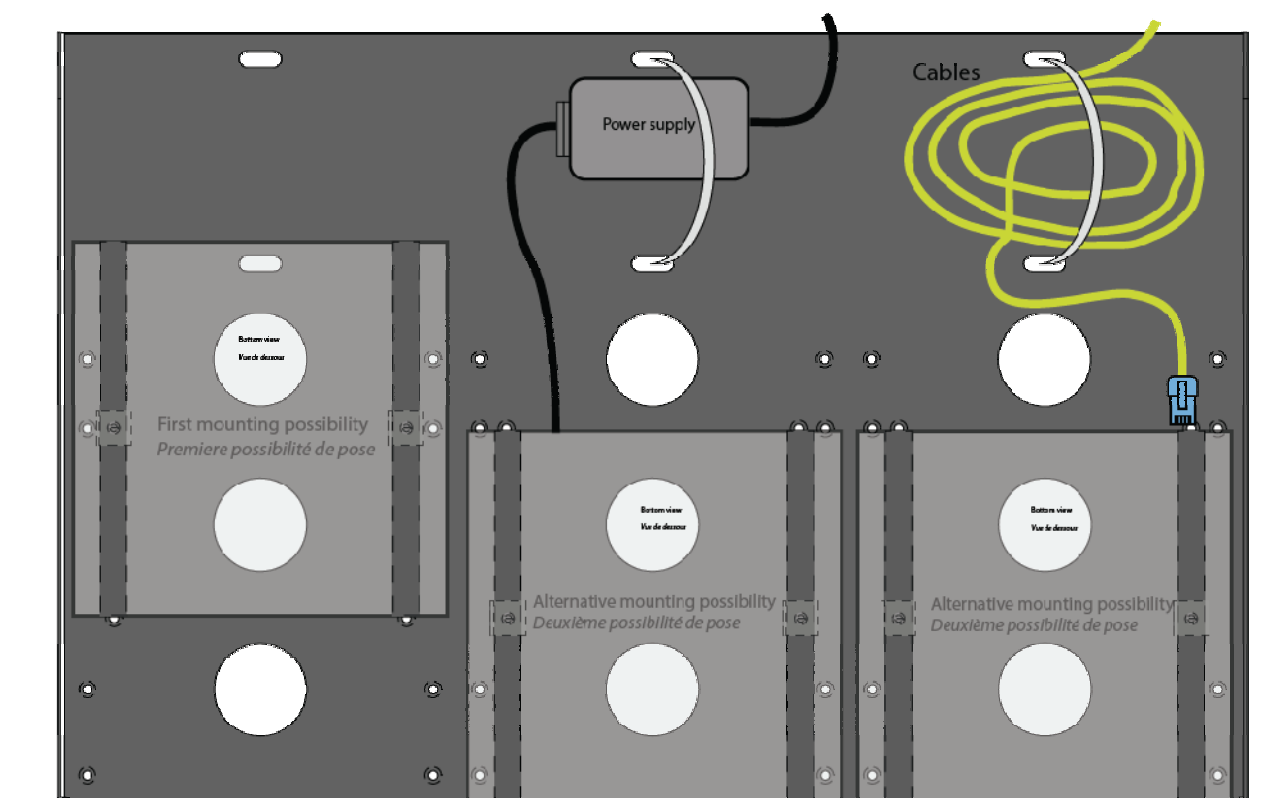
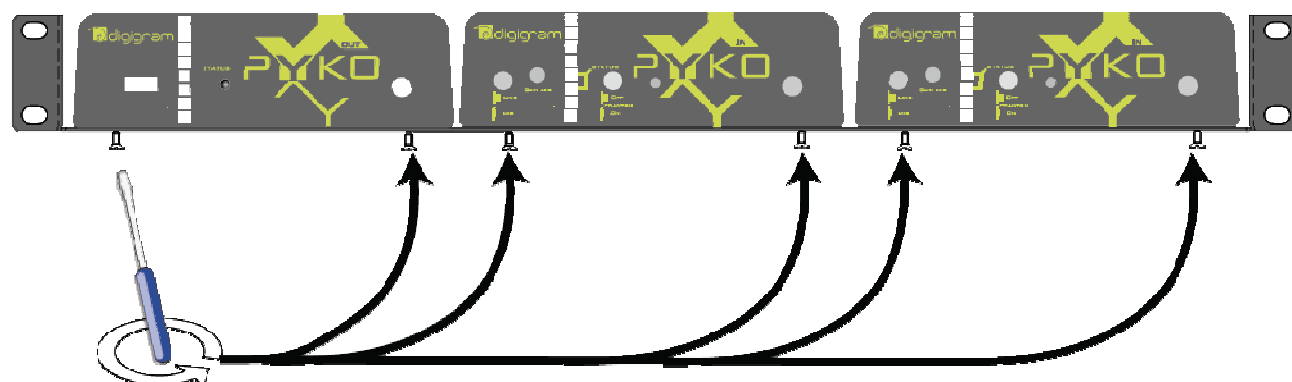
PYKO-in provides an RS232 serial port on a male DB-9 connector on its back panel. This port can be used for remote control of PYKO-in through an external interface such as, e.g. Vity, AMX or Crestron, or for tunneling purposes.

It is possible to use the RS232 in gateway mode, in multicast, and in multi-destination (up to 4 destinations)



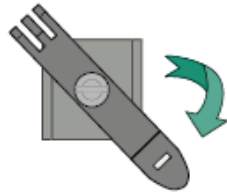
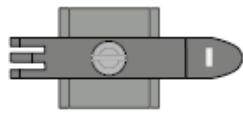
APPENDIX G: MOUNTING PYKO IN A RACK

You can mount up to three PYKO in a 19" rack:

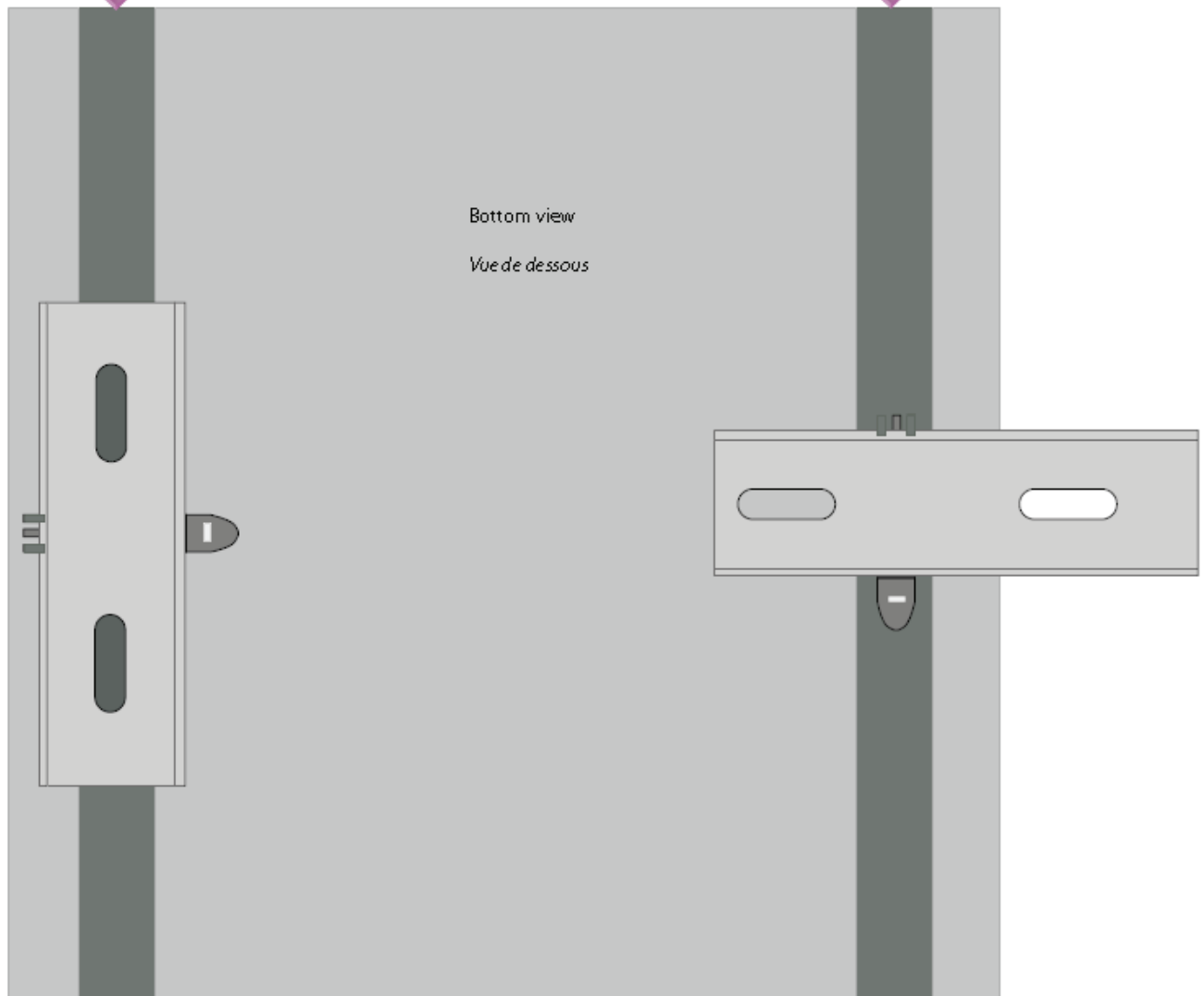
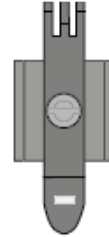


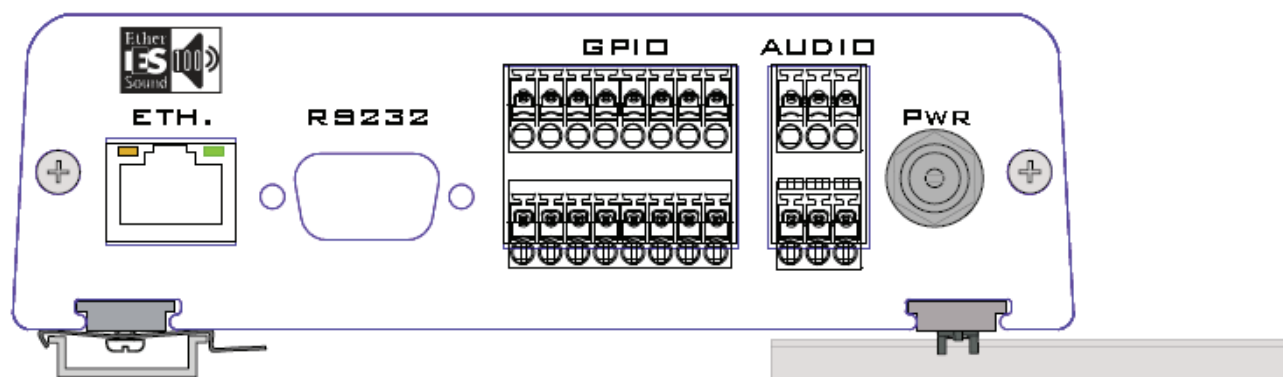
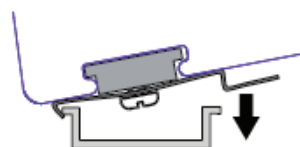
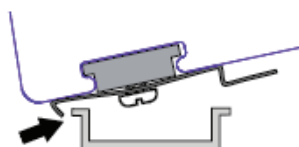
Insert the DIN-RAIL mount kit into the sliders on PYKO's bottom side.

First mounting possibility:



Second mounting possibility:





**For technical support,
please contact your system supplier**



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