



UNIDEX UX24

standalone & IP mixer console

OWNER'S MANUAL



UNIDEX ADAPTERS

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SECTION 1 OVERVIEW

USER MANUAL REVISION: MARCH 2020

1.1 The concept behind UNIDEX

The Solidyne UNIDEX mixing consoles were designed to suitable for reliable operation on 24x7x365 basis working which meet the needs of a wide range of radio stations made of Full aluminum cabinet painted and full covered by plastic lamination of polycarbonate with 3 color legends. Impossible to be erased. Which can be operated on temperature: From 10° C to 35° C in humidity of 30° C.

The system is EMI tested to check the vicinity of high frequency & high Power Radio frequency field. Which conform to electromagnetic Standards as per relevant guidelines for protection requirements relevant to electromagnetic phenomena as per international standards.

The guiding idea was to reach a compact digital console that joint all technologies with a great flexibility of connection and configuration, including audio over network (DANTE/AES67). And it must be a “stand-alone” unit, that is, the control surface and the mix engine should be contained in one framework.

Simple adapters for simple installations

UNIDEX stands for Universal Desktop with External adapters. The UNIDEX inputs allow you to connect external adapters (UDX) to handle telecommunications, microphones or USB interfaces among others. UDX adapters connect directly to the console. No routers, switches or networks are required. The UNIDEX inputs handle a data channel that allows controlling different functions of each adapter from the console.

Audio over IP for more advanced installations

DANTE connectivity allows to set up studios far from the console, using an audio network. For this case it is necessary to set up a dedicated network, and a DANTE node to input signals to the network (micro-phones) and download signals (monitoring). You can also remotely control the far studio using a computer to access the console's WEB interface. DANTE connectivity is optional. The user can choose not to include the DANTE module to obtain an additional 16 UNIDEX inputs (8 stereo).

Solidyne UNIDEX UX24 is a standalone unit, containing a fully digital mix engine which does not required any separate rack for electronic portion. It works at 24 bits @ 48 kHz with DSP processing. Its rear panel presents 4 microphone inputs, 20 stereo inputs and 24 outputs. The number of inputs is greater when used in mono for microphones and communications. UX24 has 12 faders, and can manage another 12 “virtual faders” from a touch screen on board. Everything can also be managed from an external tablet or computer. As an option, up

to two panels (hardware) of 6 faders can be added, to obtain a total of 24 real faders.

Its compact design presents all the inputs and outputs on the rear panel, with RJ45. Solidyne Provides “RJ45 to audio-connector” patch cords (XLR, TRS, and RCA).

The startup is simple. UX24 connects and go on-air with few previous settings. No advanced knowledge is required. In general, the operation of the console does not differ from a conventional console. Some features, such audio processors, are operated from the on board touch screen.

There are **3** users' profiles that gives access control. A basic operator can access only the minimum functions; but a senior operator can use advanced features or have full access to features and settings.

UX24 brings a great flexibility:

- Inputs can be assigned to any of the 12 physical faders, or the 12 “virtual” faders.
- It is possible to create scenes with different channel settings or different processing settings (i.e. for microphones).
- Remote access using a web interface.
- Manage up to 2 Studios.
- VST real time effects via USB ASIO and the external computer.

All features and settings can be accessed from the touch screen, or via IP with a computer using a WEB browser.

1.2 Features overview

1.2.1 Channels

- The mix engine UNIDEX UX24 manages 24 channels: 12 channels with 100 mm faders; and 12 “virtual” channels commanded from the surface screen or re-motely via web interface. The number of faders can be expanded with 6-channel UX6 modules, to have frameworks with 18 or 24 hardware channels.
- Each channel can receive audio from any of the inputs (except from *external tuner*).
- The channels can work in 3 modes: MIC; LINE; TELCO. These modes changes functions and the behavior of the channel and sets according to the input.
- Channels can be assigned to 4 stereo mix buses: PGM, REC, AUX, and VBUS.

1.2.2 Inputs

- **4 balanced for mics** (mono), phantom powered (48V). They have 4 band parametric EQ, dynamic compression, noise gate and de-esser.
- **4 unbalanced** (stereo): With 3 bands para-metric EQ.
- **16 UNIDEX** (8 stereo): 16 balanced mono inputs with POE and data channel. They can be used to connect, using UNIDEX adapters; microphones, telephone lines, Bluetooth interfaces among other sources. They can be set as stereo. They have 3-band parametric equalizer, dynamic compression and noise gate.
- **4 USB** (stereo): The computer connected by USB to the UX24 has four USB playback devices. Supports ASIO 3.0 These inputs have a 3-band parametric equalizer.
 - **4 AES-3** (stereo): These inputs have a 3-band parametric equalizer.
 - 1 input for external tuner, used to monitor the transmission on-air.

1.2.3 Outputs

UX24 has 18 stereo outputs and 4 outputs for monitoring:

- **2 Program** (dual): Two PGM analogical balanced outputs.
- **4 balanced stereo** (assignable).
- **4 unbalanced stereo** (assignable) It can be set as mono with mix-minus to be used with phone hybrids and VoIP.
- **4 USB stereo sends** (assignable). It are recognized in Windows as *Solidyne USB recording devices*.
- **4 AES-3** (two assignable)
- **Dual streaming PCM/MP3** (RTP + Icecast/ Shoutcast *upstream*)

1.2.4 Monitoring and intercoms

- 2 outputs for studio monitors (loudspeakers + headphones).
- 2 outputs for control room monitors (loudspeakers + headphones)
- Talk-back to studio.
- 4 Intercom lines assignable to outputs.
- CUE bus (PFL) assignable to outputs.

1.2.5 GPIO

The console has 4 GPI and 8 GPO, "Open collector". GPIO allows to command the Audicom soft-ware, digital audio processors or any other device equipped with remote control. Activation is programmable (see below).

1.2.6 StudioBox

The Solidyne StudioBox HD3 and HD5 accessories (optional) concentrate in a box all the monitoring connections needed at the Studio.



Features:

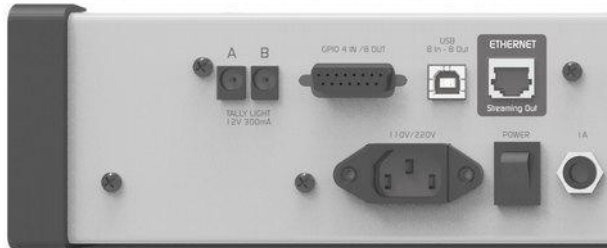
- Connection for 5 headphones in HD5 with independent controls of level (3 headphones in HD3 models).
- Double listening channel.
- Output for powered monitor speakers, with a level control.
- Tally light.
- Reverse talk-back, to speak from the Studio with the operator at CR (no matter the status of CUE in the microphone channels).
- Timer/Clock (only for HD5)

For more details please see 3.5 - *StudioBox HD3 & HD5*

SECTION 2 CONNECTIONS

2.1 Power source

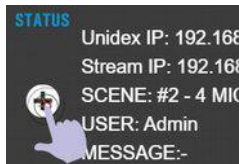
The unit has an internal switching power supply, 110/240V 50/60Hz. Looking at the rear panel, on the left side locates the power switch; a general fuse (1A) and the outlet for the AC power cord (Interlock type), which is supplied from factory.



Rear panel – AC male Interlock and fuse

2.1.1 CPU POWER OFF

UX24 works with an internal CPU. Before switch off the mixer console, is strongly recommended power off the CPU from the control screen. The option is located at the STATUS EXTRA window. To Access, touch on “+” icon at STATUS section.



A pop up window appears. Touch the option POWER-OFF to turn off the internal CPU.



This feature does not completely turn off the console. Full shutdown is done from the mechanical on/off switch. Once the CPU shut down, wait a few seconds before turning off the power switch.

2.2 Why RJ45?

UNIDEX series come with inputs and outputs full connectorized with **RJ45**. And must be wired using **CAT- 5 shielded multipair cable (STP)**. With the advent of audio over IP (AoIP), several manufacturers began using RJ45 connectors and shielded multi-pair cable to replace the different audio connectors, standardizing the entire installation with a single type of connector and the same type of cable. The use of these connectors also allowed to considerably reduce the size of the consoles.

The use of structured cable facilitates installation anywhere in the world due to the availability of components and assembly tools used in data networks. At the end of the multipair cable the connection to an audio equipment (microphones, speakers, players, and audio interfaces) will still require some type of conventional audio connector. For that, there are female RJ-45 patch cords to adapt to the audio connector needed.

2.2.1 Pre-assembled cable kits

Solidyne provides (optionally) kits of cables and adapters; intended to install the console without welding. For new installations, there are full cable kits. For replace an old console maintaining some of the existing wiring, there are adapters patch cords. The user can also build a custom kit by choosing each cable according to his needs.

The following links details all available options:

<http://www.solidynepro.com/consola-de-audio-de-bc-accesorios-y-cables/>

[List of cables and adapters patch cords \(PDF\)](#).

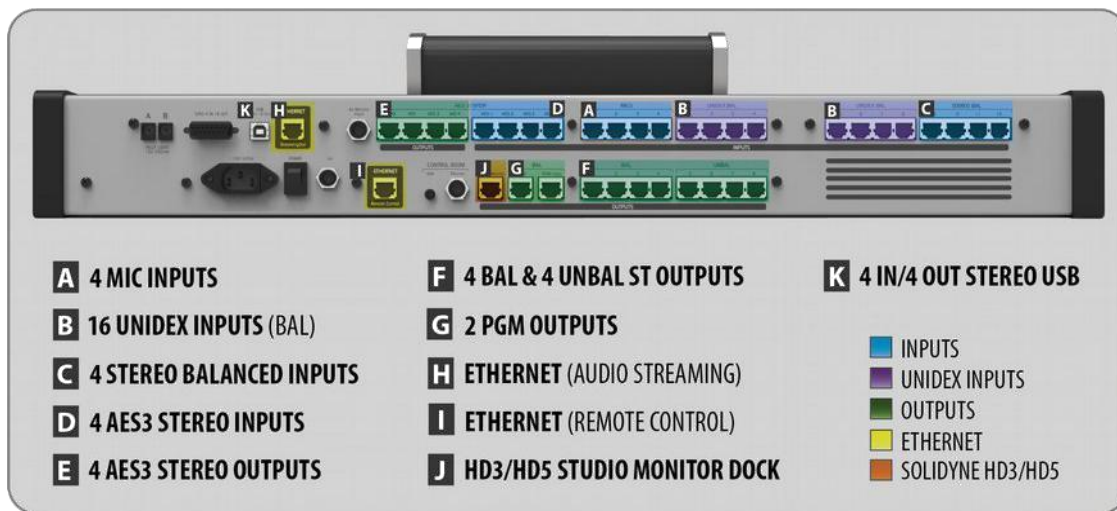
2.3 Rear panel

The rear panel contains all the inputs and outputs. As we see, all audio connections use RJ45 connectors, with the exception of the headphone and speaker outputs for control room.

Check the APPENDIX section on this manual and download an info graphic (PDF) that summarizes the interconnection flexibility of the UNIDEX UX24.

The user can assign any input to any of the 24 faders, physical or virtual. For details check the section 3, *Start Up and Routing*.

The console has 12 default scenes with many configuration that, in most cases, allows to starting to work without major settings changes.



2.3.1 Microphones inputs

A The console has four inputs for microphones, electronically balanced. They have switchable 48V power for each input. Each input uses an RJ45 connector that connects using a SOL-M25/1XLR cable.

NOTE

The pin out is compatible with balanced stereo patch cords RJ45 to XLR (SOL-M12/XLRF y SOL-M25/XLRF). Mic inputs uses only the LEFT channel.

2.3.2 UNIDEX inputs

B UNIDEX inputs -a proprietary Solidyne development are enhanced audio inputs that manages other signals (POE and communication) to control the Solidyne UDX external adapters.

There are **16 mono inputs**, which can be grouped into stereo pairs (8 stereo total). The specifications are counted as mono inputs because they are usually used to connect microphones, telephone lines and cell phones.

MODELS WITH DANTE (UX24-A67)

When UX24 includes the DANTE/AES67 option (UX24-A67) the inputs UNIDEX 5, 6, 7 and 8 are not available. Internally they become AoIP inputs 1, 2, 3 and 4.

The UDX adapters connects to the UNIDEX inputs via RJ45 to RJ45 patch cords (SOL-P25 or SOL-P50). There are different UDX adapters:

- POTS [UDX 2TEL and UDX 2TEL-P adapters]
- Smartphones via Bluetooth [UDX TEL+BT]
- Microphones: Dynamic and phantom powered condenser [UDX 2MIC]
- Dynamic microphones [UDX DMIC]
- Computers via USB → AES3

UNIDEX inputs can also be used as conventional line level audio inputs (balanced).

Each RJ45 UNIDEX connector corresponds to one input and contains two channels; left and right if stereo. In this case the connection is made using adapter cables by Solidyne (or others brands like StudioHub^(e), by Angry Audio).

2.3.3 Balanced analogue inputs

C There are 4 balanced stereo inputs. Each input uses one RJ45, since one STP cable can carries both left and right balanced signals. At the end of the cable, the RJ45 is converted to the appropriate audio connector.

To connect an input in unbalanced mode, an adapter cable is used - the signal terminals (-) are connected to the cable shield, and the (+) terminal to the 'live'. See 2.5 - Connectors and wiring.

MODELS WITH DANTE (UX24-A67)

When UX24 includes the DANTE/AES67 option (UX24-A67) the balanced inputs 9, 10, 11 and 12 are not available. Internally they become AoIP inputs 5, 6, 7 and 8.

2.3.4 AES3 digital inputs

D There are 4 AES3 digital stereo inputs. Each input uses an RJ45 connector, which will be connected with RJ45-RJ45 CAT5 cable and SOL-F3/XLRF adapter. For cable compatibility, use the same pin-out of the stereo balanced inputs, but only the left channel is connected. They also support connection of S-PDIF.

2.3.5 USB AUDIO I/O

K On-board USB provides 4 stereo input channels or "stereo playback devices" at the computer side; and 4 stereo output channels or

“Stereo recording devices” at the computer side.

USB port requires install a driver for Windows (see 2.5 – Installing USB).

The signals send to the computer via USB are routing from the screen SETTINGS → OUTPUTS.

TAKE IN MIND

While USB is a data port, we keep talking about *audio outputs and inputs*. As with all traditional audio connections, the "USB outputs" of the console are connected to "USB inputs" on the computer. It is very important not to lose sight of this concept, to understand the routing of signals when working with audio over the network (DANTE).

2.3.6 Tuner input (ON AIR)

It is a stereo input that allows you to enter the audio of the transmission tuned by an **external receiver**. Use a 1/4" JACK TRS connector. Both in Studies monitoring and in the Control of an air broadcast should be done by listening to the PROCESSED AUDIO signal from the air.

2.3.7 PROGRAM outputs

G Both RJ45 labeled as PGM are analog balanced outputs. The bus PGM is internally routed to this outputs (fixed routing).

2.3.8 Analog outputs

F UNIDEX UX24 have 8 stereo analog outputs:

- 4 balanced (electronically),
- 4 unbalanced.

Each output uses one RJ45 containing left and right signals.

The user can change the signal assigned to each output. For some applications, stereo outputs can be used as two independent channels. UDX adapters for telephone lines, for example, use mono unbalanced outputs to send signals to telephone lines.

2.3.9 AES-3 digital outputs

4 stereo AES3 outputs, SPDIF compatible. Each output uses one RJ45 connector (balanced connection). The outputs AES-1 and AES-2 sends buses PGM and REC respectively. AES-3 and AES-4 signals can be assigned by the user.

2.3.10 Streaming

H Ethernet port for streaming. UX24 can generate two differentiated audio streams, and can decode one incoming streaming.

A streaming uses the RTP protocol and is commonly used to link to the transmitting plant (STL). The second streaming is for upload to Shoutcast/Icecast servers.

Incoming streaming can be RTP or public http streaming. When the incoming streaming option is enabled, the decoded audio is automatically switched (replaces) to the AES 1 input.

2.4 About the connectors and wiring

2.4.1 General recommendations

Consider purchasing the cable kits supplied by Solidyne. See www.solidynepro.com (section accessories). There are combinations with all types of audio connectors needed (XLR, PLUG, JACK, RCA).

Other cables such as the well-known "StudioHub" (c) can be used on all audio inputs/outputs; **with the exception of the output of STUDIO MONITOR** that uses a particular cable supplied by Solidyne.

If you choose to assemble the cables, use shielded RJ45 connectors and good quality STP or FTP CAT5 cable. Be sure to attach the connector shield to the cable shield.

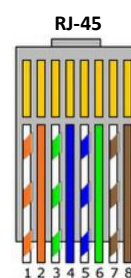
Prevent cables from hanging on their connectors. Use cable ducts to distribute the cables.

Avoid joining audio cables with AC power cables. Use separate paths for each case.

If there is background hum and ground connections are correct; It may be due to RF standing waves introduced by the FM antenna. In that case, ferrite rings can be placed on all cables that enter the con-sole.

2.4.2 RJ45 nomenclature

The following table shows the color nomenclature and standard pin numbering of an RJ45 connector.



RJ45 NOMENCLATURE	
PIN	WIRE COLOR
1	Orange/White
2	Orange
3	Green/White
4	Blue
5	Blue/White
6	Green
7	Brown/White
8	Brown

2.4.3 RJ45 inputs and outputs

The following table shows the color nomenclature and standard pin numbering of an RJ45 connector.

NOTE

The "SOL-M12 /minijack" adapters (a 1/8 female TRS) can be connected to **balanced or unbalanced outputs**. It is not recommended to unbalance inputs, since leaves the (-) signal unconnected they can introduce noise.

The "SOL-M12 /RCAM" adapters (to RCA male) can be connected to **balanced INPUTS** to unbalance them, since they connect the balanced (-) signal to ground. **DO NOT USE ON BALANCED OUTPUTS.**

BALANCED INPUTS / OUTPUTS

PIN	WIRE COLOR
1 Left channel (+)	Orange/White
2 Left channel (-)	Orange
3 Right channel (+)	Green/White
4 Ground	Blue
5 Reserved	Blue/White
6 Right channel (-)	Green
7 -15 (option)	Brown/White
8 +15 (option)	Brown

UNBALANCED INPUTS / OUTPUTS

PIN	WIRE COLOR
1 Left channel (+)	Orange/White
2 NC	Orange
3 Right channel (+)	Verde/White
4 Ground	Blue
5 Reserved	Blue/White
6 NC	Green
7 -15 (option)	Brown/White
8 +15 (option)	Brown

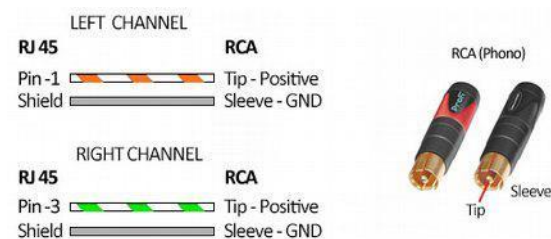
2.4.4 Solidyne UX24 wiring kits

All RJ45 adaptation sections (male or female) to standard audio connectors can be ordered from the factory. Check the **complete list of cables** in the following link:

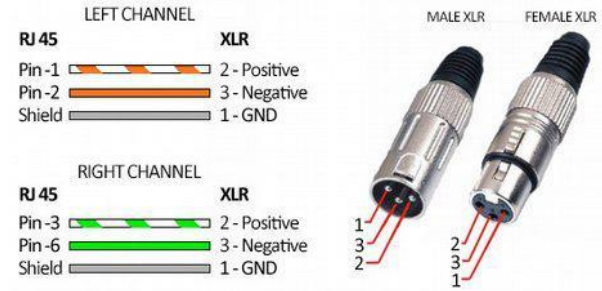
<http://www.solidynepro.com/consola-de-audio-de-bc-accesorios-y-cables/>

Next figures details the connections between RJ45 and common audio connectors:

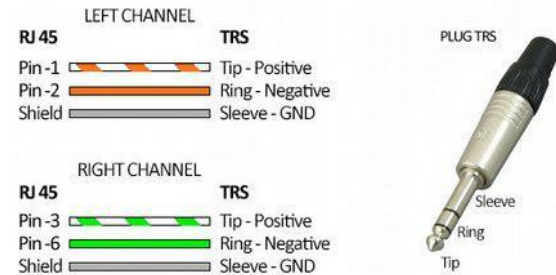
2.4.4.1 To RCA (unbalanced)



2.4.4.2 To balanced XLR



2.4.4.3 To balanced TRS



2.5 USB installation

NOTE

The following description refers to on-board USB. To install an external adapter **UDX USB** please see 2.11 – *UNIDEX external adapters*

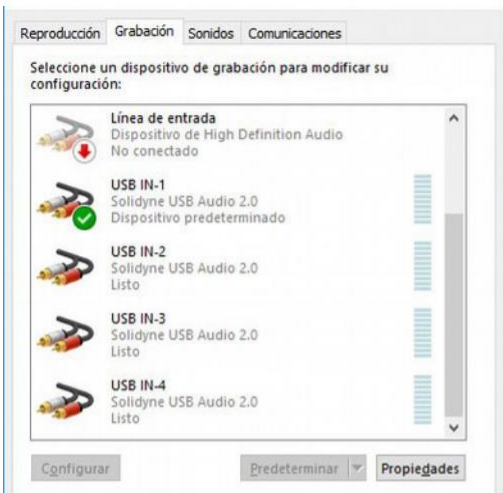
The USB connection requires a computer with Windows © 10. Provides four stereo playback devices and four stereo recording devices. Requires the installation of a compatible ASIO driver. Follow the next steps:

1. Connect the USB port of UX24 to a USB port of the computer, using the USB A-B cable supplied with the console.
2. Download the driver from the following link: http://solidynePRO.com/DW/Solidyne_UsbAudio.zip
3. Run the setup and follows the instructions.

Once the USB driver is installed, Windows shows four Solidyne USB output devices, and four Solidyne USB input devices, as shown in the following image.

USB output devices; in the console correspond to the inputs: USB-1; USB-2; USB-3 and USB-4.

The USB input devices (Solidyne USB-IN) correspond in the console with the outputs: USB-1 to USB-4, which can be assigned to any of the buses (PGM, REC, AUX and VBUS), among other possible signs.



In the software, for example in the “payout”, the USB devices must be assigned, so that each window or module of the software is assigned to a con-sole input (which is assigned to a channel; as we will see later). The USB recording devices must also be configured in the audio editors.

2.6 Monitoring at Control Room

In the radio stations that work with the Control Room, the technical operator's headphones are connected directly to the rear panel of the console, in the “CONTROL ROOM” sector. The connector is 1/4” TRS. The monitor speakers of the Control room are connected to the “SPK” jack, 1/8”. It is a line level output, intended for use with active speakers.

2.7 Monitoring at the Studio

UX24 delivers monitoring signals to the Studio through the RJ45 STUDIO MONITOR connector.

The Solidyne StudioBox HD3 and HD5 monitoring boxes (optional) manages up to five headphones (HD5) and monitor speakers, among other features (see “2.13 - StudioBox HD3 and HD5”).

Connects with a shielded multipair STP RJ45 to RJ45, flat pin-to-pin connection.

To use a conventional headphones distributors / amplifier, an adapter patch cord is provided.

WARNING

DO NOT CONNECT THE **STUDIO MONITOR OUTPUT** WHIT RJ45 CABLES USED FOR THE AUDIO OUTPUTS.

ONLY THE “STUDIO MONITOR” ADAPTER PATCH CORD PROVIDED WITH THE UNIT can be used if the Solidyne StudioBox is not available.

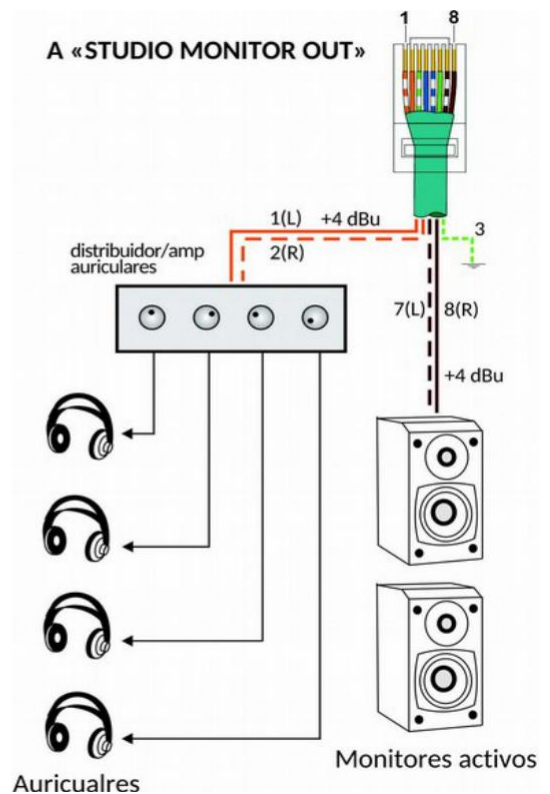


Figure 1: Connections for monitor speakers and headphones at the Studio, using the adapter patch cord and a standard headphones amplifier.

The connection is made with a “STUDIO MONITOR” adapter cable supplied from factory. The signal diagram is as follows:

RJ-45	STUDIO MONITOR OUT
1	Headphones, left (+4 dBu)
2	Headphones, right
3	GND
4	ON-AIR (+14 V)
5	Talkback to Control Room
6	VCC+14V
7	Speakers, left (+4 dBu)
8	Speakers, right
	*Chassis = GND

2.8 Tally light

There are two outputs to power “On the Air” signaling lights; for studies A and B. Each output delivers 12V / 250mA. This voltage makes it possible to connect up to 2 Solidyne 12V LED’s on-air indicators. For other models of signaling lights, verify that the set consumption is less than 250 mA.

The GPO-8 output also delivers 12V / 250mA and can be programmed to operate with any of the Tally Light outputs.

Optionally, GPO outputs 1 to 7 can be used to control individual on-air indication lights for each microphone. These outputs are of the “open dry” type (they switch between open circuit or ground) therefore they require an external power supply and, depending on consumption, a switching circuit (see below).

WARNING

The outputs for tally lights are protected by a PTC or fusistor, which operates by over-heating when the current exceeds 250 mA; cutting the voltage at the output.

To restore the voltage, disconnect the load (tally light) and check the cause of over-consumption (excessive consumption or a short circuit).

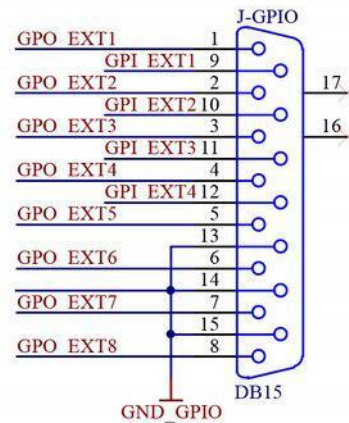
2.9 GPIO

The **GPIO** (General Purpose Input/Output) connector offers 4 inputs and 8 outputs. The GPIs allows to command some UX24 features like mics activation. GPOs can trigger external devices, such as “on-air” signaling lights; the Solidyne Audicom soft-ware or the audio processor.

- The 4 GPI supports trigger signals from 5 to 15V / 150mA (active high).
- GPO 1 to 7 are “open drain”, supporting signals from 5 to 24 V / 250 mA.
- **GPO 8** gives 12V / 250 mA (active high). It can manage a relay.

2.9.1 Signals at the GPIO connector

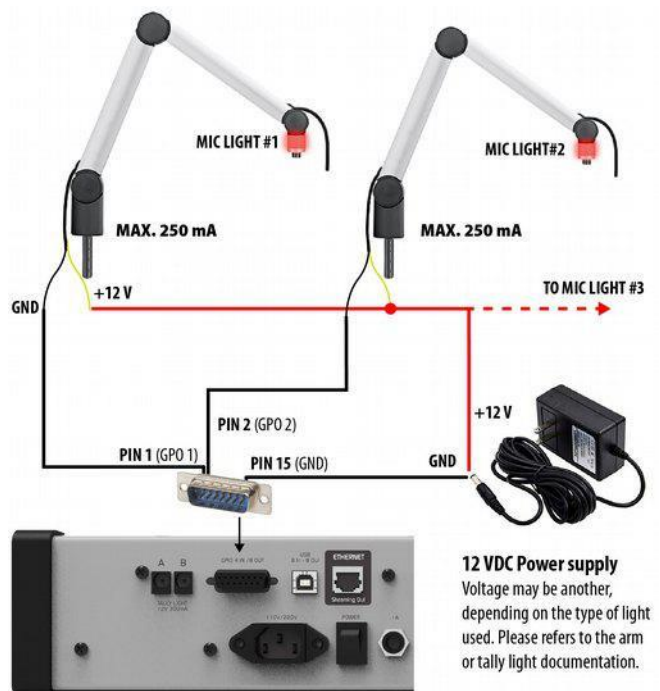
The GPIO connector is a **female D15** located at rear panel. The pin-out is the following:



2.9.2 How to connect mic arms with LEDs

GPOs 1 to 7 can work as electronic switch’s managing LEDs directly connected to an external power supply. The consumption must not exceed 250mA.

The following figure shows an example of direct connection of a microphone arm with LED light, using GPO 1.



For currents greater than 250 mA, relays must be used for switching. Note that GP8 can be used to directly handle a 12V coil relay, with a maximum consumption of 250 mA.

2.9.3 Configure the GPIO behavior

GPIO configures from SETTINGS → GPIO. Please refers to 4.8 - GPIO settings.

d UDX TYPE: 2MIC. Set UDX TYPE as 2MIC.

e MODE: INPUT TYPE: UDX. PHANTOM POWER: 48V. If needed, turn on the 48V phantom power. It enables on both UDX2MIC inputs.

f ASSIGNED TO CHANNEL: 5. Assign the input to one of CHANNELS.

g BACK INPUTS OUTPUTS. Press BACK to return to main screen.

3.3 UDX 2TEL and 2TEL-P

Modules UDX 2TEL and 2TEL-P allows to connect two POTS lines, with their phone sets.



The 2TEL-P model has on board controls that allow to answer calls with a phone set and transfer it to the console. In this way both the UDX and the associated telephones can be located away from the console, for example in a production office.

The 2TEL model has no controls on board. The calls are always answered by the operator from the console surface.

All functions of UDX-TEL adapters are operated from the console surface. The operator can dial, answer a call, leave it on hold, dialogue privately and put the call on the air. Each line is handled on individual channels.

3.2.3 Channel configuration

a MONITOR TELCO CHANNEL. Press CHANNEL on the main screen. All CUE buttons change its status to SELECT.

b Press SELECT on the channel that wants to edit. CUE buttons returns to normal work and the main screen shows the CHANNEL options. To select a virtual channel, turn the encoder and push to confirm.

c MODE: MIC. Set MODE as MIC.

d CHANNEL 5: MIC-5-UDX5. To edit the LABEL, touch on text. A keyboard will appear.

e PROCESS TURN BALANCE. Turn the encoder to choose GAIN. Push the encoder to edit the value.

f PROCESS TURN BALANCE. Set the GAIN for peaks reaching -9dBfs at the level meter.

g ACTIONS: MASTER MIC A, MASTER MIC B, STUDIO A, STUDIO B, CUE SOLO, CUE AUTO-OFF, CTRL ROOM MIC. Configure the ACTIONS for the mic channel. The MIC ACTIONS allows: link the channel to the buttons Master MIC A or B; assing to STUDIO A or B (defines which "On Air" Tally Light will triggered); set the CUE mode; set as MIC at Control Room (defines which monitors will be muted).

3.3.1 Connecting UDX 2TEL/2TEL-P



UDX 2TEL connects to the console using two STP cables with RJ45 at both ends (standard Ethernet shielded cable).

- The output labeled "TO UNIDEX INPUT" connects to an UNIDEX input of the console (in-puts UNIDEX 1 to 4).
- The input labeled "FROM UNIDEX OUTPUT" connects to an unbalanced analog output (outputs 5 to 8).

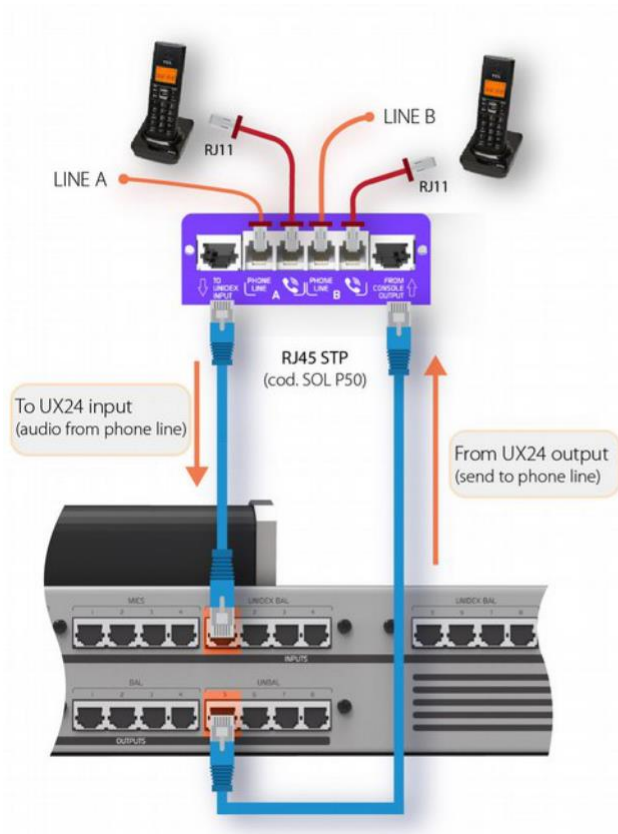
To simplify the connections for UDX-TEL, the UX24 rear panel aligns the UNIDEX inputs 1, 2, 3 and 4 with the unbalanced outputs 5, 6, 7 and 8.

Make the input/output connection as follows:

- Using input UNIDEX 1 and output UNBAL 5
- Using input UNIDEX 2 and output UNBAL 6
- Using input UNIDEX 3 and output UNBAL 7
- Using input UNIDEX 4 and output UNBAL 8

To download a Quick Installation Guide (pdf) for this UDX adapter, go to Section 7 – Diagrams and tech notes.

REMEMBER
SAVE THE CURRENT SCENE TO STORE THE SETTINGS AND CONFIGURATIONS.



From factory, UX24 have preset scenes for work with UDX 2TEL or 2TEL-P connected to input UNIDEX-1 and to output UNBAL-5.

3.3.1.1 Connection to phone lines

Telephone lines and associated phones are connected using standard RJ11 cables. Two are for connection of telephone lines, and two for their associated telephone devices. The phones work normally while the lines are not taken by the console.

WARNING

If taking a phone line there is **no dial tone**; check if the LINE and PHONE connections are not crossed in the UDX TEL box.

The lines can be connected directly to the public telephone exchange or to a private exchange (PBX). Private exchanges deteriorate the rejection of the hybrid, so we recommend connecting the adapter directly to the public exchange.

The UDX TEL adapters have internal RF rejection filters, both in the medium wave band (AM) and in the VHF and UHF bands, and it is not usually necessary to add any type of additional filter. Telephone lines are internally protected against high voltage discharges (flashes or non-direct rays) by metal oxide varistors. It is recommended, however, to have additional external gaseous protectors for each line.

NOTE

In the event that a nearby electric shock burns the thermal fuse protection, you can ask Solidyne to replace the telephone line protection circuit.

WARNING

Telephone lines in rural areas must have a gaseous protector against voltage spikes, for protection against lightning or lightning strikes.

Once UDX-2TEL (or TEL+BT) is connected proceed:

- Configure the inputs and assign channels.
- Configure the outputs.
- Configure the channels.
- Adjust the reject factor at UDX 2TEL.

3.3.2 Inputs settings

a SETTINGS SCENES PROCESS MONITOR TELCO CHANNEL

b OUTPUTS TURN GPIO
Turn the encoder to select the "L" channel at the input to which UDX 2TEL is connected.
UDX-L = Line A
UDX-R = Line B

c INPUT TYPE: UDX
MODE: Mono
PHANTOM POWER: No
Set the INPUT MODE as MONO.


d UDX TYPE: 2MIC
Change UDX TYPE to 2TEL COMPACT.

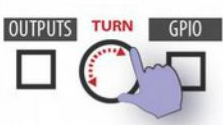
e ASSIGNED TO CHANNEL: 5 MIC-5 UDX5
Assing a CHANNEL to the input.

f PROCESS
Equalizer Dynamics
Ecualization and noise gate can be pre-adjusted.

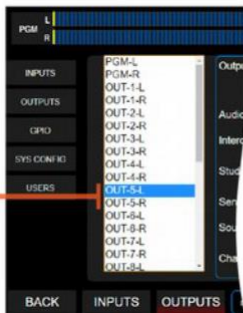
g REPEAT THE PROCESS FROM ITEM (b) BUT CHOOSING THE CHANNEL RIGHT (UDX-R) TO SET THE LINE B

3.3.3 Outputs settings

h 

i 

Turn the encoder to select the out "L" to which UDX 2TEL is connected.
OUT-L = UDX 2TEL Line A
OUT-R = UDX 2TEL Line B



j  Set the output as **MONO**. To change touch the option on screen.

k  Touch to set **Send Mode** as **MIX-MINUS**. This way the output stays associated to the UNIDEX input that corresponds.

l REPEAT FROM ITEM (j) CHOOSING THE CHANNEL "RIGHT" (OUT-R) TO SET THE **LINE B**

m  Press **BACK** to return to the main screen.

e  Check if the output assignment indicates the corresponding output and if the mode is **MIX-MINUS**.

f  Press **BACK** to return to main screen.

3.3.5 ADJUSTING THE REJECT FACTOR

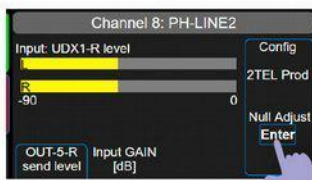
The rejection factor or "null" factor must be adjusted for each line. Default factory is set to work with ideal line impedances; but in practice the telephone lines do not have the theoretical values, so a fine calibration is necessary.

If the rejection value is not the optimal, when a call is on the air the voice of the Studio announcer can be affected (colored) by the audio of the telephone communication.

The rejection adjustment is necessary in: UDX 2TEL; 2TEL-P and TEL+BT. It is carried out using a precision flat screwdriver, on a preset that is accessed from a hole in the upper face. To make it proceed as follow:

a  Press **TELCO** to access to TELCO control panel.

b  **Make a call** (it can be an incoming calling or can be made from console). At the other end the caller must keep silence.

c  In the TELCO CONFIG section, press **Null Adjust ENTER**. The console sends a calibration tone to the phone line. The meter INPUT LEVEL shows the level at which the calibration signal returns.

d  The operator don't need to put the call on-air to make the calibration (main fader can be closed).

e  The reject factor **adjusts from the UDX 2TEL box** using a knob on a preset, turning in both directions until finding the point where **the calibration signal that returns**, shown on the meter, is **the minimum**.

e  Once settled the reject factor, ends the calling. **The Null adjust must be set for each phone line.**

3.3.4 Channel settings

a  Press **CHANNEL** at the main screen. All the buttons CUE/SELECT change its status to **SELECT**.

b  Press the button **CUE/SELECT** on the channel that wants to edit. CUE buttons returns to normal work and the main screen shows the **CHANNEL** options. To select a virtual channel, turn the encoder and push to confirm.

c  Set **MODE** as **TELCO**.

d  To **edit the LABEL**, touch on text. A keyboard will appear.

REMEMBER

SAVE THE CURRENT SCENE TO STORE THE SETTINGS AND CONFIGURATIONS..

To download a Quick Installation Guide (pdf) for this UDX adapter, go to Section 7 – Diagrams and tech notes.

3.4 UDX TEL+BT

The adapter UDX TEL+BT manages one standard phone line (POTS) and a **Bluetooth link** to pair a smartphone.



The connection and settings for the POTS lines was detailed above.

The procedure to pair a cell phone is explained at section 4.7 – TELCO.

To download a Quick Installation Guide (pdf) for this UDX adapter, go to Section 6 – Diagrams and tech notes.

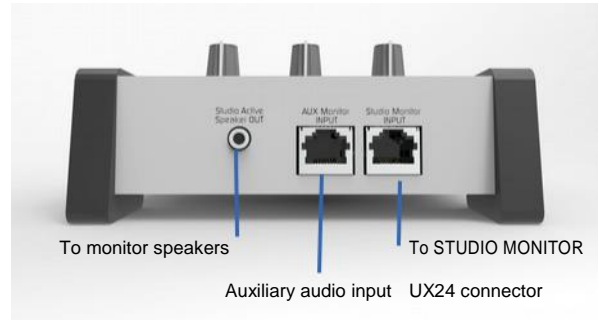
3.5 StudioBox HD3 & HD5: Monitoring at the Studio

The modules for monitoring Solidyne StudioBox HD5 and HD3 resolve the sending of all monitoring signals to the studio.



3.5.1 CONNECTING

The HD3/HD5 accessories are connected to the “**Monitor Studio**” connector (UX24 rear panel), using a shielded multipair CAT-5 cable, with connection over RJ45 T568B (a 5 meter cable is included with the StudioBox). Through this cable the con-sole sends the signals to the headphones and speakers; and receive the Talkback from Studio.



The speaker output uses stereo 1/8” TRS connector (minijack). This is a line level output, intended for use with powered speakers.

The aux input is used to connect an alternative signal to the main assigned from the console (ON-AIR, PGM, AUD, SEND or CUE). The headphones can be switched between inputs A (console) and B (aux).

- On HD5 models, A/B switching is available independently for headphones 1, 2 and 3. Headphones 4 and 5 always receive the main “Studio Monitor” signal, assigned from the console.
- On HD3 models, headphones 2 and 3 share the assignment.

The auxiliary input is unbalanced, with RJ45 connector. The connection to any RJ45 audio output of the console, balanced or unbalanced, is made using a standard STP RJ45 cable on both ends (SOL-P25 or SOL-P50 cables).

Headphone outputs use stereo 1/4” TRS connectors (jacks). Headphones of any impedance can be connected interchangeably (64, 32, 16 Ohms).

NOTE

For HD3, the headphones outputs 2 and 3 are twin: they shares the level knob and the source assignment.

The UX24 console supports up to three HD3 or two HD5 units, which are connected on the “Studio Monitor” output in parallel. RJ45 type “Y” (“Y” splitter) junction boxes with pin-to-pin connection are used for the connection.



3.5.2 USING THE STUDIOBOX

About the headphones into the Studio

The Solidyne HD5 accessory manages up to five headphones with independent level knobs.

HD3 allows to connect up to 3 headphones and has two level knobs. Headphones 2 and 3 are twins, sharing the level control.

The maximum volume delivered is determined by the headphone level control in the MONITOR section of the UX24. What is heard depends on the signal selection made in the console.

About the loudspeakers into the Studio

The output for Studio speakers has a level control. StudioBox have dual A/B monitoring channel. Channel A is fed from the "Studio Monitor" connection, so the signal heard depends on the assignment on the console. Channel B receives the signal from the aux input (AUX Monitor Input).

NOTE: SPEAKER MONITORS LEVEL

Set the volume using the speaker's knobs for a comfortable listening, leaving the LOUDSPEAKER LEVEL knob of the StudioBox at center position.

About the Studio Intercom

The white button have two functions:

1. When the microphones are turned off, pressing the StudioBox Intercom who is in the Studio can speak to the Control Room. StudioBox has a contact microphone for this purpose. At the Control Room, the operator will listen the signal by the console's CUE channel. The internal mic gain is adjusted with the preset "mic gain". In the console surface, the knob CUE level has no action on the HD3/HD5 mic signal, so that the Inter-com will heard even if the CUE volume is zero. The operator will use the talk-back as is usual to talk with the Studio.
2. When the mics are on the air, the Intercom button only works as a tally light.

NOTE

MIC GAIN: The preset located below the mic allows to set the mic gain and therefore, the listening level for the operator at the Control Room.

About the Timer/Clock (only HD5)

Displays the current time (when the Studio is off-air) or the time spent on-air (when the microphones are on-air).

The counter mode can be disabled. For this, remove the cover of the HD5 and remove an internal jumper located next to the clock. This will disable the counter feature, and the display will always shows the current time.

(Optional)

1 kHz Tone Generator for feeding Tone shall be available in the internal to console.

SECTION 4 START UP AND ROUTING

4.1 Starting up

When the console is turned on, load the operating system. When the boot sequence ends, the main screen appears and UX24 loads:

1. The user profile settled for the start up.
2. The last used scene.

The default profile is ADMIN that has no restrictions. It can be changed from SETTIGNS screen.

On startup, UX24 never ask for the user's password. To starting up with restrict access, change the de-fault star up user to a restricted one. If the console restarts, the user with restricted access must know the password to change to the ADMIN profile (see below).

The scenes save the configuration of the inputs, outputs, routing, audio processes and channel settings. When started, UX24 loads the scene used last time.

4.2 Inputs/outputs default routing

Next are detailed the default inputs and outputs, stored in all empty factory scenes. At the Section 7 – Diagrams and tech notes, you can download a document that summarize with graphics the default settings for the factory scenes.

UDX adapters requires different settings and routings. By default, empty scenes comes with some channels settled to connect:

- One UDX-2TEL or UDX-TEL+BT
- One UDX-2MIC to add two microphones.

These channels can be configured to others uses.

4.2.1 Default inputs routing

The following table shows the default configuration for default empty scenes.

CH#	NAME	MODE	INPUT	M/ST
1	MIC-1	MIC	MIC 1	M
2	MIC-2	MIC	MIC 2	M
3	MIC-3	MIC	MIC 3	M
4	MIC-4	MIC	MIC 4	M
5*	MIC-5 UDX5	MIC	UNIDEX5-L	M
6*	MIC-6 UDX5	MIC	UNIDEX5-R	M
7**	PH-LINE1	TELCO	UNIDEX1-L	M
8**	PH-LINE2	TELCO	UNIDEX1-R	M

9	IN-ST9	LINE	STEREO BAL 9	ST
10	USB-01	LINE	USB1 L&R	ST
11	USB-02	LINE	USB2 L&R	ST
12	USB-03	LINE	USB3 L&R	ST
13	USB-04	LINE	USB4 L&R	ST
14	IN-ST10	LINE	STEREO BAL 10	ST
15	IN-ST11	LINE	STEREO BAL 11	ST
16	IN-ST12	LINE	STEREO BAL 12	ST
17	IN-AES1	LINE	AES1-L&R	ST
18	IN-AES2	LINE	AES2-L&R	ST
19	CHANNEL19	LINE	NO ASIGNADO	-
20	CHANNEL20	LINE	NO ASIGNADO	-
21	CHANNEL21	LINE	NO ASIGNADO	-
22	CHANNEL22	LINE	NO ASIGNADO	-
23	CHANNEL23	LINE	NO ASIGNADO	-
24	CHANNEL24	LINE	NO ASIGNADO	-

* Requires an external adapter UDX 2MIC.

** Requires an external adapter UDX 2TEL or 2TEL-P.

4.2.2 Default outputs routing

OUTPUT	SIGNAL	LEVEL @0 VU**
PGM & PGM COPY	PGM (fixed)	+ 4 dBu
BAL OUT 1	PGM	+ 4 dBu
BAL OUT 2	REC	+ 4 dBu
BAL OUT 3	AUX	+ 4 dBu
BAL OUT 4	VBUS	+ 4 dBu
* UNBAL OUT 5	UDX 2TEL (optional)	+ 8 dBu
UNBAL OUT 6	NOT ASSIGNED	0 dBu
UNBAL OUT 7	NOT ASSIGNED	0 dBu
UNBAL OUT 8	CUE	0 dBu
USB1	PGM	-20 dBfs
USB2	REC	-20 dBfs
USB3	AUX	-20 dBfs
USB4	VBUS	-20 dBfs
AES1 PGM	PGM	-20 dBfs
AES2 REC	REC	-20 dBfs
AES3	AUX	-20 dBfs
AES4	VBUS	-20 dBfs

* By default it's configured to connect an external adapter UNIDEX UDX 2TEL or 2TEL-P

** Output level for 1 KHz at 0VU. With PGM signal, with peaks reaching 0 VU, the output peak will be louder due to integration time of the VUmeter.

4.2.3 User profiles and restrictions

There are three users' profiles with different restrictions:

BASIC - EXPERT - ADMIN

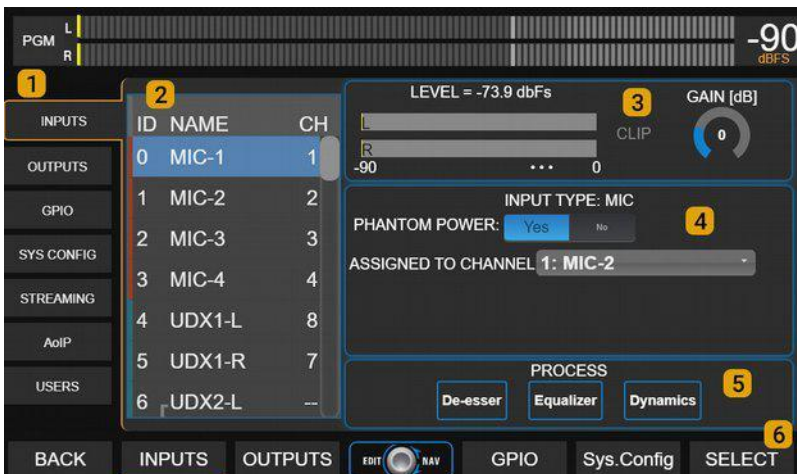
By default, UX24 starts using the profile ADMIN, with full access.

The EXPERT and ADMIN profiles are password protected, but the password is never requested at startup. To restrict access to advanced features, the default boot profile must be changed to BASIC Or EXPERT.

For more details see 3.7 SETTINGS/USERS and 4.10 SCENES AND USERS.

4.3 SETTINGS

On this screen you will find all the configuration options. It is accessed by pressing the SETTINGS but-ton on the main screen.



1 – CATEGORIES: All routing and configuration Options are classified into categories that are accessed from the menu on the left. On the right, the options of each category are shown. A category is chosen by touching the option on the screen, or by pressing the contextual button below the screen, if that option is available.

4.4 SETTINGS: INPUTS

2 – AUDIO INPUTS

List of all available audio inputs in the UNIDEX UX24. To navigate the list, turn the encoder. At the right, the options and settings of the selected input are displayed.

The list also shows the channel assigned to each in-put.

Stereo inputs shows as L/R pairs. For certain uses a stereo pair can be ungroup and be used as two independent MONO inputs.

- When an input is set as stereo, at the list the stereo pair appears grouped.
- When an input is set as mono, left and right channels ungroups and can be selected as independent channels.

3 – GAIN

Changes the input gain. Each time that an input is selected on the list, the focus is on the GAIN control. Turn the encoder to change the GAIN value. Push the encoder to switch between modes list navigation or gain value editing.

The level indicator shows the peak value in dBfs.

This gain control is also available on the CHANNEL screen. The input gain adjustment can be made from this screen or from the channel screen.

Quick gain set:

1. On the channel you want to adjust, play music with low dynamics (for example, current pop); or speak continuously and at an "average" level.
2. Raise the fader to the nominal work zone (the zone marked between -10 y -20 dB).
3. Adjust the input GAIN until see that main VU Meters reaches 0 VU indication.

4 – INPUT FEATURES

The features that appears in this zone depends on the input that is currently selected.

INPUT TYPE: This information is present for all Cases. Shows the input type: MIC, LINE, UDX, USB, and AES.

MODE: Sets the input mode as stereo or mono. When an input is used as mono, left and right channels works as independent channels.

ASSIGNED TO CHANNEL: Define the channel, from 1 to 24, to which the signal of that input is sent. The channel is chosen from the touch screen, from a drop-down list. This option is also available on the CHANNEL screen, from where it can also be edited.

PHANTOM: This option is shown only for MIC inputs. Turn on or off 48V phantom power for that input.

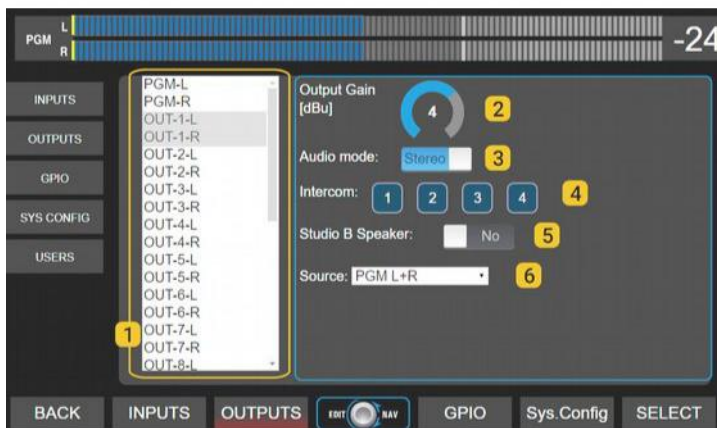
UDX TYPE: This option is shown only for UNIDEX entries. Define the type of external adapter connected to the input. The model is chosen using the touch screen, from a drop-down list.

When a UNIDEX input is used as a balanced line in-put, UDX TYPE must be LINE (default).

5 – PROCESS: Shortcuts to the audio processes available in each input. In the usual operation, the Processes are usually accessed directly from a channel.

6 – SELECT: In the screen INPUTS, the function SELECT toggle the buttons CUE/SELECT to the mode SELECT, to quick access to the input assigned to a fader.

4.5 SETTINGS: OUTPUTS



1 – OUTPUT LIST

List of all available outputs. To select an output, turn the encoder. Options and settings of the selected output are displayed at right.

2 – OUTPUT GAIN

Adjusts the output level. To change the value, turn the encoder. Pressing the encoder switches between the navigation of the list and edition of gain value.

For analog outputs, the level is expressed in dBu referred to 0VU peak (default level + 4dBu).

For digital outputs, the gain is expressed in dB. The nominal output level (gain 0) is -20 dBfs referred to 0VU (1 KHz @ 0VU = -20 dBfs).

3 – AUDIO MODE

Switch the output mode between mono or stereo. As with the inputs, a stereo output can be used as two independent mono outputs (for example, external UDX 2TEL adapters use mono outputs for sends).

4 – INTERCOM

Assign an Intercom signal to this output.

5 – STUDIO B SPEAKERS

This option enables the output for connection of monitor speakers in Studio B. When the microphones assigned to Studio B are activated, this out-put will be muted.

6 – SOURCE

Sets the signal source for selected output. Sources can be: PGM, REC, AUX, VBUS; CUE; STUDIO HEAD-PHONES; TALKBACK; MIC-1; MIC-2; MIC-3; MIC-4 and the inputs UDX 1 to 8.

7 – SEND MODE

Set the output mode to DIRECT or MIX-MINUS.



DIRECT is normal mode for the outputs. The MIX- MINUS is disabled. The signal assigned at field SOURCE, sends directly to the output.

MIX-MINUS: When an output works in MIX MINUS, certain input signal will be subtracted from the output signal

MIX MINUS

A MIX-MINUS output is a special mix in which the signal of a given input is SUBJECTED from the mix. An application case is the return to the telephone line. If the return contains, for example, the PGM sig-nal, this PGM mix should not contain the audio from the telephone line, because it would generate a feedback loop (the audio from the telephone line would be re-injected into the line). A MIX-MINUS of PGM is sent to the line; that is, the PGM signal MI-NUS the telephone line audio.

Outputs 5 through 8 and USB sends can work in normal (DIRECT) or MIX-MINUS mode.

8 – MIX-MINUS SOURCE: BUS for the MIX-MINUS: PGM, REC, AUX; VBUS or AUTO ASSIGN.

The option AUTO ASSIGN dynamically changes the BUS, according to the assignment made on the channel. In this mode, a priority order is set for when the channel is assigned to more than one BUS. The priority set is: PGM - REC - AUX - VBUS. If the channel is assigned to all buses the mix-minus

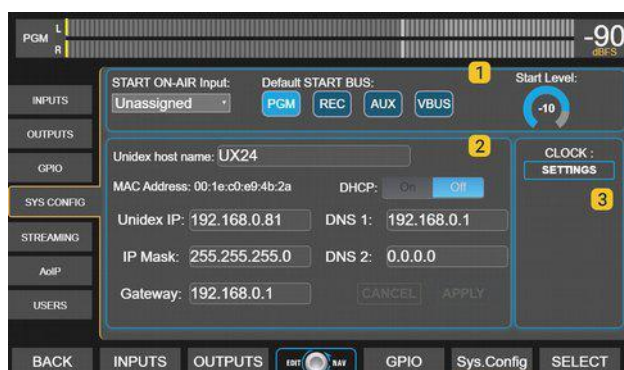
is done against PGM. But if the channel is assigned, for ex-ample to REC and AUX, the mix-minus is done against REC.

9 – CHANNEL: It shows the input associated with the selected output, and the channel assigned to that input. These fields are not editable. The input associated with each output for mix-minus is predetermined and cannot be modified.

OUT5-L	UDX1-L
OUT5-R	UDX1-R
OUT6-L	UDX2-L
OUT6-R	UDX2-R
OUT7-L	UDX3-L
OUT7-R	UDX3-R
OUT8-L	UDX4-L
OUT8-R	UDX4-R
USB OUT1-L	USB IN1-L
USB OUT1-R	USB IN1-R
USB OUT2-L	USB IN2-L
USB OUT2-R	USB IN2-R
USB OUT3-L	USB IN3-L
USB OUT3-R	USB IN3-R
USB OUT4-L	USB IN4-L
USB OUT4-R	USB IN4-R

In order for an output to be used in MIX-MINUS mode, the associated input must be assigned to a channel. If the input is not routed, the MIX-MINUS mode remains disabled.

4.6 SYS CONFIG



1 CHANNEL ON-AIR ON STARTING

Set one input that will be aired in case the console restarts due to power failure.

Start on-air input: Select an input. It can be assigned to a channel (hardware or virtual). The console always starts with the last scene used. If the station is in automated transmission, verify that the scene used has the channel set to the input defined for “automatic start”. Logically, the audio source connected to that input must also be reestablished by itself.

Default BUS: Buses that will be turned on at the channel associated with the “default” input.

Start Level: Channel’s fader level. In physical channels, this level is independent of the position of the mechanical fader, but if the fader is moved, the level will change to the current position of the fader.

2 NETWORK SETTINGS (Ethernet control)

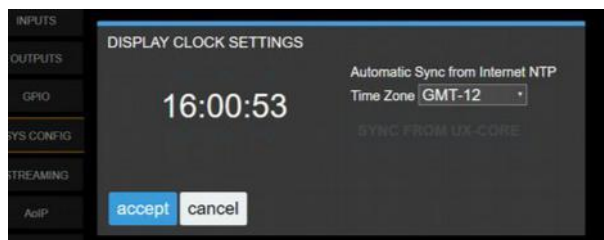
LAN settings for remote control. By default the device works with DHCP enabled. The IP assigned by the router is shown on the main screen (UNIDEX IP).

The IP address allows the user access to the console using a web browser. UX24 has an internal HTML5 server, which allows remote control over all the operation features and settings.

3 CLOCK SETTINGS

Shows a pop-up box to set the time. The clock can be settled in three ways:

1. Connecting the UX24 to a LAN with Internet using Ethernet STREAMING port. In this case the sync is full automatic. No other action is required.
2. Connecting the UX24 to a LAN with Internet using Ethernet CONTROL port. In this case an internal clock UX-Core is synchronized. **The user must sync manually the internal computer** (which controls the touch screen interface) **by touching the option SYNC FROM UX-CORE** showed on screen.
3. Manually from the screen. Used when the LAN do not have Internet access.



NOTE

When UX24 access to Internet, it synchronizes with a World Clock (UTC). The user must define the *Time Zone* according to correspond.

4.7 Streaming

UX24 gives two independent *out coming audio streams*, and can receive one incoming streaming. The options for out coming streaming are:

1. A *streaming RTP* for point to point link.
2. A *streaming* for upload to servers type *ice-cast/Shoutcast*

4.7.1 Streaming signal and send level

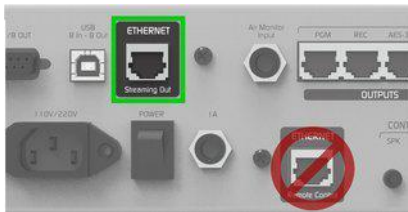
Streaming takes the program signal from the AES-1 PGM output, both for uploading to Icecast / Shout-cast servers and for RTP.

If the gain of the AES-1 PGM output is changed, the send level for streaming is changed.

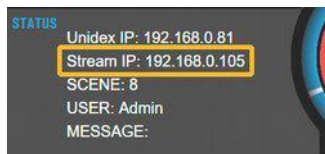
4.7.2 Connection and settings

The connection to the LAN for streaming transmission and reception is done through the ETHERNET Streaming Out connector.

WARNING
DO NOT CONFUSE THE ETHERNET CONNECTOR (CONTROL) WITH THE ETHERNET PORT FOR STREAMING.



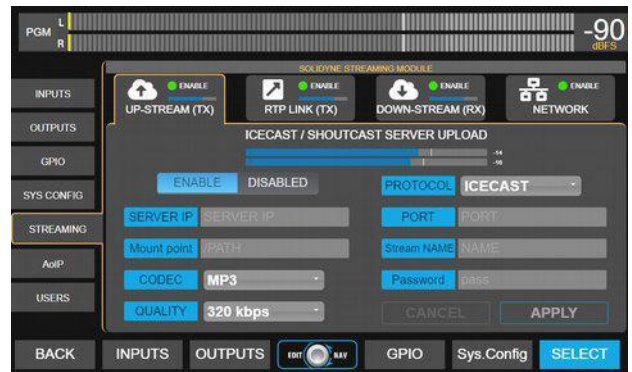
1. Connect "Streaming Out" to the LAN router.
2. The router will assign an IP address to the UX24 streaming device (DHCP). The IP address shows at the main screen.



3. The configuration of the streaming services can be done from the console screens, or using a network terminal and a WEB browser accessing the Stream IP address.

4.7.3 UP-STREAM (TX)

This option is accessed from the console by pressing SETTINGS on the main screen. SETTINGS -> STREAMING has four tabs to configure the different features. The UP-STREAM tab presents configuration options for uploading to Icecast or Shoutcast broadcast servers.



4.7.3.1 ICECAST/SHOUTCAST STREAM

ENABLE/DISABLED: Enables the streaming send for Icecast/Shoutcast.

PROTOCOL: Define if the server is Icecast or Shout-cast.

SERVER IP: IP address to which the streaming is sent. Is the address of Icecast/Shout-cast server.

PORT: TCP listening port for the server.

MOUNTPOINT: A unique name that identify the *stream* at the Icecast/ Shoutcast server.

CODEC: Audio format for the transmission. The current version of firmware only sup-ports MP3 coding.

PASSWORD: Password to access the server (if needed)

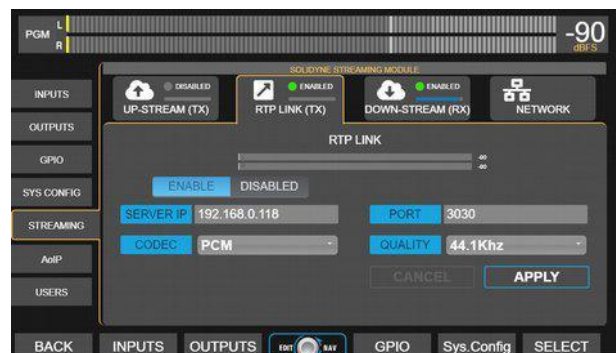
QUALITY: Audio bitrate.

APPLY: Name that identify the stream.

NOTE
Settings for Icecast/Shoutcast usually are given by the streaming provider.

4.7.4 RTP STREAM

The RTP LINK tab presents configuration options to send streaming to a specific IP address. It is used to create point-to-point links, for example, to send the program signal to the transmission plant (STL).



ENABLE: Enables the streaming send for *Icecast/ Shoutcast*.

DESTINATION ADDRESS: Target IP address for the out coming stream.

PORT: Transmission TCP port.

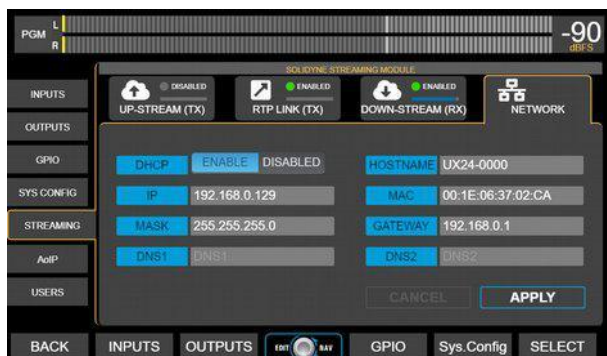
CODEC: Audio format for the RPT stream. It can be PCM or MP3.

QUALITY: MP3 for MP3 or sample rate for PCM.

4.7.5 DOWN-STREAM (RX)

Settings for the incoming streaming. Supports RTP streams or public HTTP streams.

4.7.6 STREAMING NETWORK



Network settings for the UX24 streaming module. At the present version this settings are fixed and de-pends on the settings of the LAN (DHCP).

4.8 GPIO

UX24 have 4 GPI (*general purpose inputs*) and 8 GPO (*general purpose outputs*).

GPIO connections and common applications was detailed above in section 2.9 – *GPIO*.

The behavior for each GPIO sets in the following screen:



Each file correspond to one GPI or GPO.

For each GPI/O the user can assign an action from the drop-down menu ACTION.

Each GPIO can be associated to one channel, which is selected from the menu CHANNEL.

The actions available for the GPI are:

UNASSIGNED
CHANNEL ON/OFF
MASTER MIC A
MASTER MIC B

The actions available for the GPO are:

UNASSIGNED
CHANNEL ON/OFF
TALLY A
TALLY B
TELCO RING

Examples:

The following settings:

GPI 1 | CHANNEL ON/OFF | CHANNEL 1

...will cause that Channel 1 turn on/off according to the signal present at the input GPI 1.

The following:

GPO 1 | CHANNEL ON/OFF | CHANNEL 6

...will cause that output GPO 1 changes its status when the Channel 6 is turned on or off.

4.9 SETTINGS: USERS

UX24 has three user levels: ADMIN, EXPERT, and BASIC. The ADMIN and EXPERT users are password protected, which are defined on this screen. Only the ADMIN user can change passwords.

Default passwords are user names, in lower case (admin and expert).

DEFAULT USER

Defines the user that loads when the console starts. By default ADMIN.

When start up, the system never will ask by password, no matter which is the default starting user.

To restrict access to advanced features, change the default boot user (ADMIN) to BASIC or EXPERT, depending on the level of restriction needed. Thus, if the console starts with a BASIC profile, passwords for EXPERT or ADMIN must be known in order to access restricted features. For example: If the console starts with an EXPERT profile, only the features that require ADMINISTRATOR level will be blocked.

4.10 AoIP

Settings options for DANTE module, if available.

SECTION 5 OPERATION

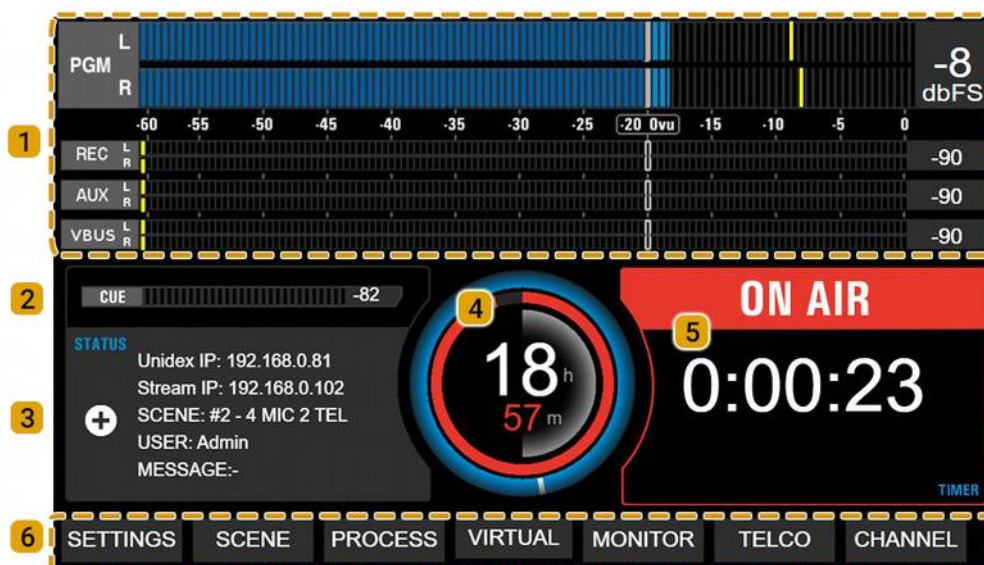
5.1 Overview

The mixer console presents to the operator different area whit controls:



- A) Traditional controls on each channel, with faders, assignment buttons, ON/OFF and previous listening or CUE. They operate in a traditional way and allow direct command of POTS, VoIP and cell phones via Bluetooth (using external adapters UNIDEX TELCO).
- B) A main touch screen, from where certain functions are controlled: audio processors, “virtual” channels (channels not assigned to real faders), simplified functions for telecommunications, scenes. This screen also contains the level meters, clock and counter.
- C) A **monitoring section** and talkback.
- D) Remote control using external computers. Using a web browser can access an HTML5 graphical interface. All features of UX24 can be operated remotely. The WEB interface is a great tool for operating virtual channels. A tablet can work as a fader’s extension; or set up a remote studio.

5.2 Main screen



1 – LEVEL METERS: The main screen contains the level meters for: PROGRAM (PGM), REC, AUX and VBUS. The indicators show average level in VU (slow moving blue bar), and peak level (floating yellow segment).

The scale is in dBfs. -20 dBfs corresponds to 0VU. The same scale is valid for all meters. The numbers shown on the right indicates the current maximum level, which can be expressed in VU or dBfs. To switch it, tap on the number on the screen.

The PGM meter remains visible on all screens and can be switched to other buses by tapping on the text "PGM".

2 – CUE LEVEL: Shows the level of the CUE signal. This level is posterior to the knob *CUE Level*.

3 – STATUS:

Unidex IP: IP address to access to the UX24. Entering this IP into a web browser (Chrome recommended) the users access to the remote control interface.

Stream IP: Destination IP address for the streaming.

SCENE: Indicates the current scene.

USER: Name of the current user profile. There are three users' profiles: ADMIN, EXPERT and BASIC.

MESSAGE: Shows system messages.

"+" ADVANCED STATUS: It presents advanced options for system maintenance. The most important item is the safety shutdown for the internal CPU.

4 – MAIN CLOCK: Shows the current time. The time synchronizes with the LAN to a world clock. Requires internet access.

5 – ON-THE-AIR COUNTER: Indicates when the microphones are ON; showing an ascendant count in hours: minutes: seconds.

6 – MAIN OPTIONS: The different options are accessed by pressing a button located below each menu item. On each screen, the options are navigated and edited using the touch screen and the encoder, as explained below.

All screens keep the PGM level meter visible. The Operator always sees what happens with the level Of the air signal.

The following describes in general the function of each screen.

SETTINGS Only the ADMIN user profile has access. This menu option is not enabled when working at the BASIC or EXPERT level. It contains all the advanced and system con-figuration options, including the assignment of inputs and outputs.

SCENE Access the editing and creation of scenes. Allows changing the user profile, each with different access permissions.

PROCESS Access the audio processors: parametric equalization, dynamic compression, de-esser and noise gate. The available processes change for each type of input.

VIRTUAL Pushing the encoder at main screen, the user access to on-screen mixer for virtual channels.

MONITOR It shows the assignment of monitoring sources for the Studio and the Control Room. It contains advanced functions related to monitoring in speakers and head-phones.

TELCO It has a management interface for channels connected to telephone lines, Bluetooth phones or IP voice software. It has all the necessary functions, including a keyboard to dial from the console.

CHANNEL This option shows the screen that summarizes the status of the selected channel. The CHANNEL screen shows information and gives access to basic features such as gain control and panning; and to some advanced options such as audio processes and inputs routing.

SCREEN SAVER

All displays automatically turn off after 15 minutes of in-activity. Slightly moving a fader or pressing an Intercom button activates the displays.

5.3 Channels

UNIDEX UX24 is a 24-channel mixing console. In the basic configuration, it has 12 channels with 100mm "real" faders; and 12 channels with "virtual" faders that can be operated from the on-board display, or from an external computer or a tablet.

Optionally, up to two UX6 expansion modules can be added, to obtain a surface with 18 or 24 physical faders.

All channels have 4 mix buses. The channels in the hardware have three buttons for quick assignment to the PGM, REC and AUX buses; plus a fourth bus is assignable from the screen (VBUS).

Each channel presents the following areas:



- 1 BUSES:** Each of the 24 channels can be assigned to 4 mix buses: PGM; REC; AUX; VBUS

On the UX24 surface physical channels 1 to 12 are assigned to PGM, REC and AUX directly from three assignment buttons present on each channel. When is assigned, the button lights orange.

The assignment to the VBUS is made from the touch screen, from CHANNEL screen or from the WEB interface (see below).

- 2 CUE/SELECT:** This button have 3 functions:

- CUE, pre-fader listening (PFL)
- SELECT, channel selection
- TALKBACK in channels with mode=TELCO

In normal use they work as CUE buttons, to listen to the signal present on that channel, prior to the attenuator and the ON-AIR button.

The SELECT function is used to select a specific channel and perform some operation, for example, set the gain, equalization, edit the label, etc. When the SELECT is activated the CUE buttons change to blue and SELECT is indicated on the OLED screen. The use of this mode is detailed below.

TALK-BACK mode is exclusive to TELCO channels, which handle telephone lines. By holding down CUE,

the built-in talk-back microphone is activated to talk to the telephone line.

- 3 ON-AIR button:** It's the ON/OFF button. When is ON, the signal sends on-air (to the mix buses). The level is set with the main fader.

- 4 DISPLAY:** OLED screen that shows:

- The input level previous to fader. If the input signal is reaching 0 dBfs at the A/D converter, a CLIP indication appears. To solve this condition, turn down the input gain.
- Name or label that identify the channel.
- States or special modes like SELECT or channel functions like TELCO.

OLED ENERGY SAVER

The **brightness of OLED displays** is reduced after 5 minutes of inactivity. After 15 minutes, the OLEDs turn off. Any action on the channel controls or the Intercom but-tons restores the displays.

- 5 MAIN FADER:** 100mm soft touch faders. Sets the level for the signal on outputs assigned to the buses. The final level of each mix bus shows on the main screen. PGM meters keeps visible at all screens.

5.4 Monitoring section

In this section of the console, the operator assigns the signals that will be heard on the monitor speakers and headphones of the Studio and Control Room.

Also located in this sector are the microphone activation master buttons A and B, the CUE level control, the talk-back command microphone and the inter-com groups.



1 – STUDIO MONITOR: Allows to select a signal source for the Studio monitoring. The options are:

AIR-IN PGM, REC, AUX, VBUS CUE

The send level for studio speakers and headphones can be adjusted from the touch screen in the MONI-TOR section (see below).

2 – CONTROL ROOM: Allows to select a signal source for the Studio monitoring. The options are:

AIR-IN PGM, REC, AUX VBUS

The selector knob is an encoder that changes the options on the screen when it is rotated, and has a push function to confirm an option. To choose a signal source proceed:



Turn the encoder. The options will be displayed on the screen, and the text will remain flashing until the operation is confirmed.



To confirm the selection, push the encoder. The audio is switched when confirming the operation. If the knob is turned but not pressed to confirm, after 10 seconds the action is canceled and the screen returns to the current source.

If the encoder is pressed with one touch (without turning it), it returns to the previous monitoring source, indicated below in small letters. This feature allows you to quickly switch the listening between two sources with a simple touch.

3 – CONTROL ROOM MONITORING LEVEL: It is a rotary attenuator that handles the level of the control speakers. The output is line level, to connect active or powered speakers. Note that the maximum level reached will be affected by the speaker's own level adjustment.

4 – CONTROL ROOM HEADPHONES LEVEL: A rotary knob that manages the level of the operator's headphones.

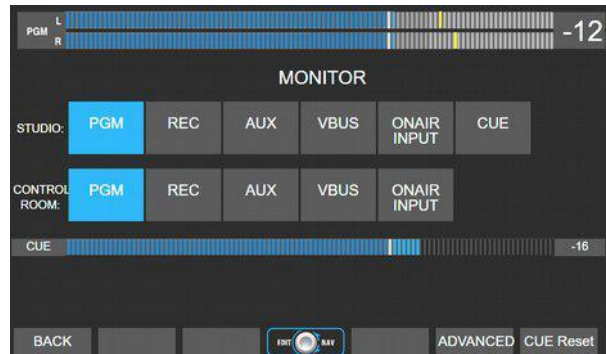
5 – CUE LEVEL: It is a rotary knob that controls the level of the CUE bus. The main screen shows a CUE level meter, in dBfs. This indicator shows the level after the CUE level control; therefore, there is no indication if the knob is zero.

The SPEAKER and PHONES buttons inject the CUE signal into the speakers and/or headphones of Control Room. When these buttons are activated, the CUE signal is added to the currently monitored signal (shown on the SOURCE screen). The monitored signal reduces its level automatically when a CUE signal is present. The degree of attenuation can be defined in the MONITOR section.

The CUE bus can be assigned to any output, for connection of auxiliary speakers. By default, it is as-signed to UNBAL 8.

5.4.1 The screen MONITOR

By pressing the button MONITOR or this option at the main screen, the user access to the MONITOR screen.



This screen replicates the signal assignment for the Studio and Control Room, but showing the options in the traditional way with a selector keypad (now they are touch buttons!). To change an assignment, press the option on the screen.

There is a CUE level meter, in dBfs. The level shown is after the CUE level control (post-fader). There will be no level indication if the CUE knob is zero.

The CUE Reset option turns off all active CUE buttons, both physical buttons and virtual channel CUE buttons.

The option ADVANCED opens a new screen, with advanced monitoring settings:



Navigation



Turn the encoder to navigate the controls.



Push the encoder to select a control.



Turn the encoder to change the value of the selected control.



Push the encoder to confirm the new value. When do it, the encoder returns to the navigation mode.



Functions **Intercom to CUE** and **CUE to speaker** are toggled by touch screen.

Studio speaker: Change the audio level for the speakers at the output “Studio Monitor” (rear panel).

Studio headphones: Change the audio level for the headphones at the output “Studio Monitor” (rear panel).

Ring level: Set the volume on CUE for the calling “ring”. A ring sound is played when incomes a call (for land lines and Bluetooth).

Talkback mic: Gain of the talk-back microphone.

Intercom input: Is the level at which signals coming from Studio Box (*reverse talkback*) and UDX INTER-COM (coming soon) mixes to the bus CUE.

Intercom to CUE: Enables or disables the return of Intercom signals to CUE (not implemented yet).

CUE to speaker audio attenuation: Set the dim value applied to the monitored signal at the Control Room when a CUE signal is mixed (at speakers or headphones).

5.5 THE FEATURE SELECT

UX24 has a 7” touch screen, which is used to operate many operating functions. The screen has 6 quick access buttons and a rotary encoder. The Controls are contextual, that is, the actions they perform change according to which section or screen is active.

The **SELECT** mode temporarily changes the function of the CUE buttons to *channel selection buttons* (SELECT). It is used to choose a channel and operate on it. The touch screen shows the information of one channel at a time. For example, to adjust the EQ of a channel, the channel must be chosen to view the corresponding EQ controls.

Three actions can activate the mode SELECT:

1. Pressing the option CHANNEL at the main screen.
2. Pressing the option PROCESS at the main screen.
3. Pressing the option SELECT on the CHANNEL screen or a PROCESS screen (EQ, compressor, etc.).

When the **SELECT** mode is active, the CUE buttons are light blue, and the channel OLED displays indicate

SELECT. It is possible to choose a channel in two ways:



MODE A

Pressing the button CUE/SELECT. The channel is selected and CUE buttons return to its normal function.



MODE B

Turning the encoder to navigate the channels. The encoder explores the channels. The encoder runs through 24 channels, whether physical or virtual.



To confirm the selection press the SELECT button. When confirming, the SELECT mode is disabled.

5.6 CHANNEL SCREEN

All values and configurations of a channel are shown summarized on the channel screen.

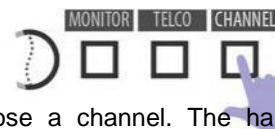
The operator always has access to basic functions (e.g. input gain). Advanced settings require access to the ADMIN profile.

NOTE

There are **three user profiles** to access the console. Access to advanced configuration options is only allowed for the ADMIN.

To access to the CHANNEL SCREEN proceed:

1. Press the button CHANNEL at the main screen. This enables the mode SELECT.

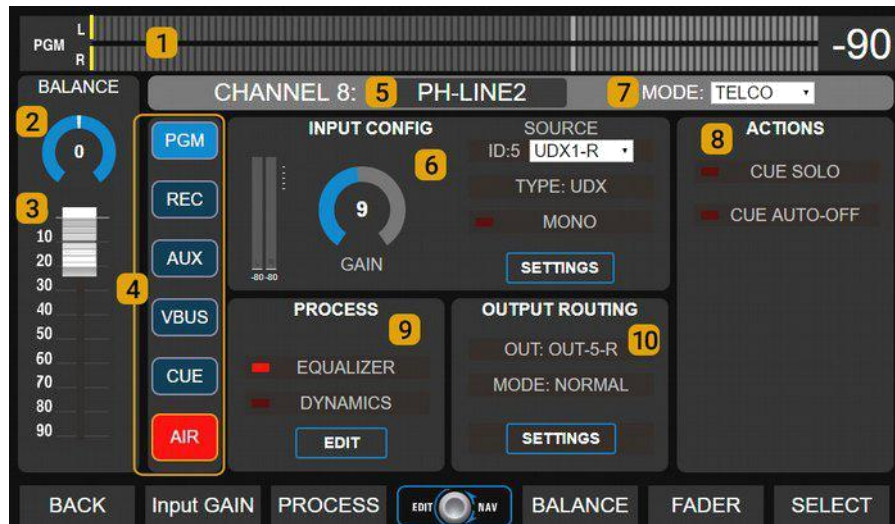


2. Choose a channel. The hardware button CUE/SELECT allows the direct selection of a channel. While the selection function remains active, different channels can be successively selected to compare their values.

Turning the encoder navigates through the channels. The Channel Name zone is shown in light blue for hardware channels and in purple for virtual channels.

3. To confirm a channel and exit SELECT mode, on the screen press the SELECT button (the same as on the main screen is CHANNEL) or push the encoder. The selection function is also canceled when a parameter is modified in the selected channel.

CHANNEL SCREEN.
Shows features, settings and basic controls for the selected channels.
Allows to access to the input/output routing and the audio processing screens.







1 PGM VUMETER: Shows the program output level in VU, with peak retained. This meter remains visible on all screens.

The number on the right shows the maximum value, which can be expressed in VU or dBfs. It is switched with a tap on the value. The VU/dBfs unit change takes effect on all displays.

By touching on text “PGM”, the level indicator changes successively to show the AUX, REC, or VBUS buses.

2 BALANCE: Left / right balance adjustment. In mono inputs is the PAN-POT control. To change the value:

-  The encoder navigates between the functions GAIN → BALANCE → FADER. **Turn it** until focus on BALANCE.
-  **Push** to edit the value.
-  **Turn** to change the value.
-  **Push** to confirm the value and leave the edit mode.

3 MAIN FADER: Set the level of the signal for all buses. This level is shown at the vu-meters.

On channels with hardware faders, the faders on the screen reflects the position of the hardware faders. If the fader is changed on the screen the level changes, but the mechanical fader remains in the same place, since they are not motorized. When the level of a hardware fader is changed by software, the OLED screen shows the current level flashing, to

Indicate that it does not match the position of the hardware fader. The fader level on the screen shows always the current level of the channel.

NOTES

Although virtual channels are 100% operational from the touch screen, for convenient operation it is recommended to use the remote web interface, which can run on a larger screen or tablet.

The level at the outputs and vu-meters indication can differ since outputs have gain offset. Level meters and outputs matches when output gain control is set at the nominal level for this output.

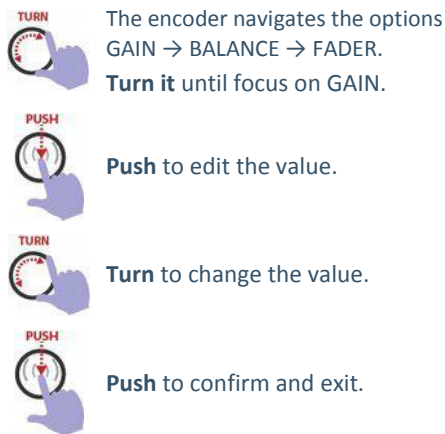
4 – BUSES: For hardware channels, reflect the assignments to the mix buses according to the PGM, REC and AUX buttons. For virtual channels, they allow you to assign a channel to the different buses. In both, you can assign the channel to the VBUS bus (which does not have a hardware assignment button).

The assignment to any of the buses can be turned on/off by pressing the corresponding button on the touch screen. In the hardware channels, the switching will be reflected in the button. The same goes for the CUE bus.

5 – NAME: Allows to enter a name for the channel, of up to 10 characters. This name is shown on the OLED screen.

6 – INPUT CONFIG: It contains the input gain control; shows the input assigned to the channel and information associated with the input. The ADMIN user can access the input settings by touching SETTINGS, or assign the input from the drop-down menu.

GAIN Set the input gain, in dB. To change:



7 – MODE: The mode changes the behavior and configuration options available on the channel. The mode is set according to the type of signal that the channel will manage. To change it, touch the option on the touch screen and select a mode from the drop-down menu.

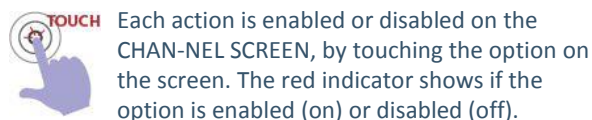
There are three channel modes:

LINE For channels that manages any type of source that not be microphones or communications.

MIC It is the mode used for channels that operate microphone signals. The microphones can be connected to the on-board mic inputs; they can be connected to external UDX 2MIC or DMIC adapters; or they can be wireless microphone receivers or third-party preamps connected through line inputs.

TELCO It is the mode used for channels that manage communications (land lines, Vo-IP, Bluetooth cell phones). Channels defined as TELCO can remotely control external adapters UDX 2TEL, UDX 2TEL-P and UDX TEL+BT.

8 – ACTIONS: Special features that defines the Channel behavior. The available features depends on the channel MODE.



CUE SOLO and CUE AUTO OFF

This actions are available for all channels.

CUE SOLO

If enabled, when a CUE is turned on all CUEs of other channels settled as CUE SOLO turn off. Only the channels working as "CUE SOLO" are affected.

For others channels, one or more CUE buttons can stay on.

If all channels work in CUE SOLO mode, there will always be only one CUE turned on. A usual configuration is to work the lines as "CUE SOLO" mode (computers and audio players) and the micro-phones and TELCO channels as "CUE NORMAL" mode.

CUE AUTO OFF

If enabled, CUE is turned off when the channel is on-air (ON-AIR button on and fader raised).

ACTIONS FOR "MIC" CHANNELS

The following actions are available only when MODE = MIC.

MASTER MIC A & MASTER MIC B allow you to as-sign the channel to master buttons A or B. All channels assigned to a master button are turned on simultaneously when the button is pressed.

A channel assigned to a master button can always be activated independently by pressing the ON-AIR button of the channel.

STUDIO A & STUDIO B are used when working with two studios. Allows you to associate a microphone channel with signaling outputs A or B; so that de-pending on the location of the microphone, its activation turns the light "On Air" in the corresponding studio.

CTRL ROOM MIC are used when a microphone is located at the Control Room. It causes that when turning on that microphone, the Control speakers are muted, not the Studio speakers.

9 – PROCESS: It shows the audio processes available for that channel, and if they are activated. They can be turned on / off by touching the process name. To change the settings, touch the EDIT option (see PROCESS screen)

The available processes are not in the channel, but depend on the input that the channel has assigned.

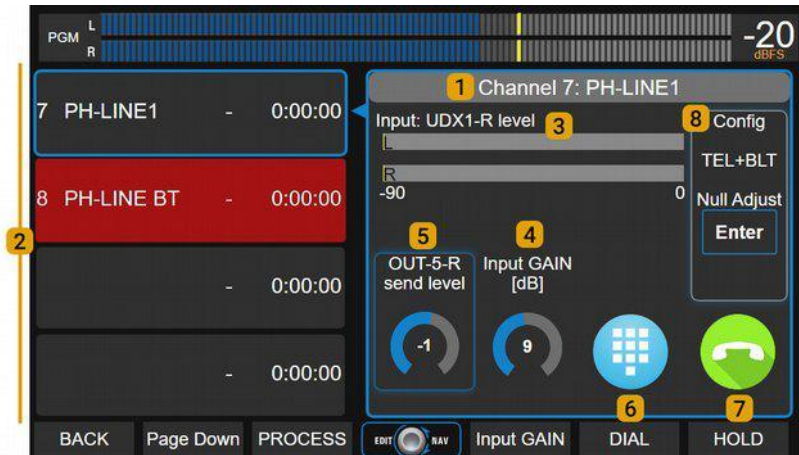
10 – OUTPUT ROUTING: Shows if the channel is associated with a direct output. An example of this is the external adapters UNIDEX UDX 2TEL, which have an associated output for sending signals to telephone lines. The ADMINISTRATOR user can access the configuration by touching SETTINGS.

5.7 TELCO - COMUNICATIONS

The TELCO screen only shows channels defined in TELCO mode (see CHANNEL screen). Are those associated with telephone lines and Bluetooth phones that are connected by external adapters "UDX TEL".

TELCO contains all the necessary functions for handling telephone calls, including the possibility of dialing from the console. Some operations can also be done using the channel's CUE and ON AIR buttons (see below).

The TELCO screen layout is the following:



1 – SELECTED LINE: Name and channel of the Selected line. The lines are selected by touching in the left list. The selected channel is indicated in the list with a blue frame and a red arrow.

2 – AVAILABLE LINES: En This area shows a list of up to 4 TELCO channels. If there are more than 4 channels, the "Page Down" button allows to scroll the channel list.

Each block corresponds to a channel and contains the channel label and a counter for the elapsed time on-air or on-hold. The status of the line is also signaled: GREEN when a line is hold (waiting) and RED when it is on-air.

3 – LEVEL: Shows the level of the received signal. It also indicates the name of the input used by the UNIDEX adapter.

4 – INPUT GAIN: Display the gain control of the input assigned to the UNIDEX external adapter. It is adjusted using the encoder.

5 – SEND LEVEL: Displays the gain adjustment of the output assigned to the UNIDEX adapter for sending audio to the line. It is adjusted using the en-coder.

6 – DIAL: Opens a DTMF dialer to make callings from the console.

7 – HOLD/HANG UP: For incoming calls, it allows to take the line and leave it on hold. When a call is on-air, it allows to end the communication.

8 – CONFIG: Reports the type of adapter associated with the channel, and configuration options. The content of this sector varies according to the UNIDEX adapter connected.

NULL ADJUST

This option is shown only for POTS lines (UDX 2TEL; 2TEL-P and TEL+BL). Adjusts the rejection factor (see 2.11.3 - UDX 2TEL and 2TEL-P).

BLUETOOTH PAIR

This option is shown for TELCO Bluetooth channels. It turn on Bluetooth discovery mode to pair a phone.

By linking the cell phone to the console a wireless link is created between both devices. The phone registers the unique

Identification code of the console (UDX adapter). Pairing is done only once. Multiple phones can be paired, but only one can be linked to UNIDEX.

ABOUT THE CELL PHONE DISTANCE

Although the cell phone can be up to 5 meters away from the UDX Bluetooth adapter, IT IS RECOMMENDED TO LEAVE IT CLOSE TO AVOID INTERFERENCE in the link, which can generate artifacts in the audio (a "robotic" sound).

The procedure for pairing is the following:

1. Select with touch on the list a Bluetooth line.
2. Touch the option BLUETOOTH PAIRING. The UDX adapter Bluetooth will switch to mode *pairing* and the channel will display "pairing".
3. Turn on Bluetooth at the mobile and make a search for new Bluetooth devices. In the list must appear the item SOLIDYNE BTM641.
4. Connect to SOLIDYNE BTM641. The mobile is now paired and linked with UNIDEX adapter.

If Bluetooth is turned off on the mobile, the TELCO screen and the OLED display will indicate "not liked". The connection is restored by activating Bluetooth on the phone and choosing the Solidyne device again.

Telephone calls via Bluetooth manages in the same way as calls from POTS lines (see below).

Calls received through apps (WhatsApp, Skype, etc.) must be answered from the mobile.

5.8 WORKING WITH CALLS

Using UDX 2TEL-P adapter, the calls can be answered from a production office or by a telephone operator; and then be transferred to the UX24.

If you have a UDX 2TEL adapter, calls are answered in the Control Room directly from the console.

Each telephone line uses a channel in the console. Any channel can be configured to handle telephone lines or phones linked by Bluetooth.

5.8.1 Incoming call

1. When a call is received, the CUE button will flash in blue on the corresponding channel with the ring cadence. At the same time, a ring sound will be heard by CUE. On the TELCO screen the line indicates "RING".
2. The calling can be answered in two ways:
 - a) From the channel, pressing ON-AIR button.
 - b) From the TELCO screen, touching HOLD.

WARNING

When the call comes from an app (WhatsApp, Skype, Hangouts, etc.) it must be answered directly from the mobile phone.

When the call is answered, the line is taken (HOLD). The listener is not on the air and remains listening to the program signal.

3. To speak privately with the caller, press and hold the TLBK / CUE button. While the button is held down, the order microphone is sent to the telephone line. The OLED display indicates TLBK. In this mode the monitoring out-puts of the Control Room are silenced. When you release the TLBK / CUE button, it returns to the previous state (the talkback function does not change the CUE state). With CUE on we listen to who is on the other side of the line, through the CUE circuit.
4. To air a calling, press the button ON AIR and raise the fader.
5. To hold the calling again, press ON AIR. In the case of Bluetooth, the call can be resumed from the mobile phone by turning off the hands-free mode; and return the call to the console by activating hands-free.
6. To end the call, press and hold ON-AIR. Or touch HANG-UP on TELCO screen.

NOTE: ABOUT THE CALL LEVEL

CALLING ON-AIR VOLUME: Do not mix calls with excessive level. The UDX-TEL adapter has a high but not absolute rejection. The audio sent to the line (the voice of the announcers), is not canceled 100% and returns through the hybrid, adding to the voices of the studio (the rejection setting optimizes this signal return). With adequate levels of work this effect is not noticeable; but if the hybrid is mixed at high levels the voices from the studio can "get dirty" (coloration).

Keep in mind that a telephone communication must not reach OVU to match the loudness of the voices from the studio, with peaks at the same level. The bass, which carry the greatest energy and produce greater deviation in the indicators, are not present in the telephone line audio. However, for the ear the loudness is defined by the range of medium frequencies. So if you notice that the level meter "peaks lower" with a telephone line than the studio voices, this does not mean that "it is heard lower". On the other hand, the radio's audio processor will be in charge of matching both signals.

Conclusion: do not be fooled by the level meter when mixing floor voices with phone calls.

5.8.2 Make a call from console

To dial proceed:

1. Press the button TELCO on main screen.
2. Select a LINE from the list.
3. Touch on the icon DIAL. A keyboard will pop up to dial.
4. Dial the number.
5. The audio from the line hears on CUE.
6. To speak privately with the line, press and hold the CUE button on the corresponding channel.

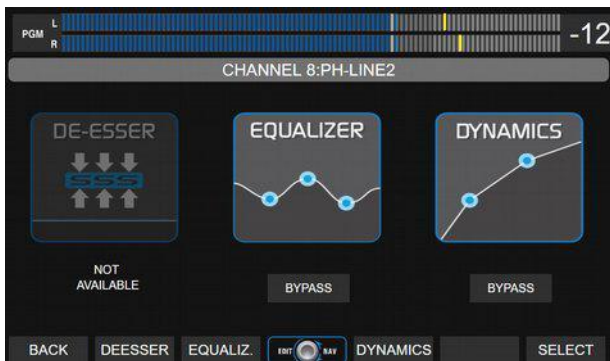
5.9 AUDIO PROCESSORS

Audio processors are fixedly implemented over each of the inputs. They are not "channel" processors, and are not assignable to other channels, buses or outputs. The available processors change according to the type of input, therefore, which processors are enabled on a channel depends on which input is assigned to that channel.

The following table shows the processors available for each input:

INPUT	PROCESSOR		
	Parametric EQ	Comp.+ Gate	De-esser
MIC	4 bands	yes	yes
UNIDEX	3 bands	yes	no
USB	3 bands	no	no
AES3	3 bands	no	no
BALANCED	3 bands	no	no

To access to the audio processors, press the button PROCESS at the main screen. This enables the function SELECT to choose a channel (for details please see 4.5 – The function SELECT).



The screen PROCESS allows:

- Know which processors are available for the selected channel; and if they are active or turned off (BYPASS).
- Enable/disable each processor by touching the BYPASS option.
- Access the settings screen of a processor, by touching the on-screen icon, or the associated contextual button.

SELECT A CHANNEL:

- When the function SELECT is active, the buttons CUE/SELECT on surface allows to select a channel.
- Turning the encoder navigates the 24 channels (hardware and virtual). On screen the user see the processors status for each channel.

While the SELECT mode is active, the label zone shows in light blue for physical channels and violet for the virtual.

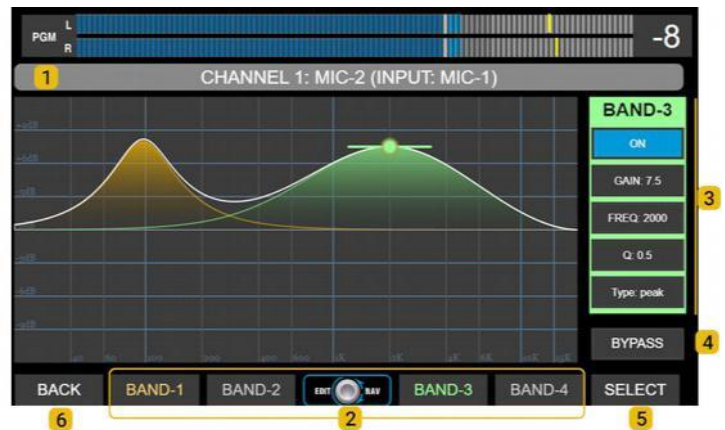
NOTE

If the SELECT mode is active, any action on the PROCESS screen cancels it. The action will apply to the channel that was currently selected.

You can activate SELECT from a processor screen, and choose another channel.

The navigation of the parameters within each processor is done with the encoder and tactile options. In the explanations that follow, it is detailed for each case which parameters handles the encoder and which are tactile.

5.9.1 PARAMETRIC EQUALIZER



Navigation



TURN to choose an option.

The encoder navigates the options → **GAIN** → **FREQUENCY** → **Q** →



The controls **ON**, **TYPE** and **BY-PASS** can be switched only from touch-screen.

1 – CHANNEL and LABEL: Shows the channel Number and the label. For virtual channels, this area shows violet background.

2 – EQ BANDS: Band selection. The screen shows the parameters of one band at a time. Each band has a color that identifies it, in the graph and in the parameter area. All UX24 inputs have 3-band parametric EQ; except the MIC-1 to MIC-4 inputs that have 4-bands.

3 – CONTROLS. Shows the parameters of an EQ band. The background color changes with the selected band. Equalizer settings can be saved in the current scene (see SCENES).

GAIN: Set the gain in a range of ± 9 dB.

FREQ: Set the center frequency. All bands can work from 20Hz to 20 KHz.

Q: EQ wide.

TYPE: EQ mode. Band 1 can works as *peak* or *low-shelf*. Bands 2 and 3 works only as *peak*. Band 4 can work as *peak* or *hi-shelf*. To change the options touch the item TYPE on screen.

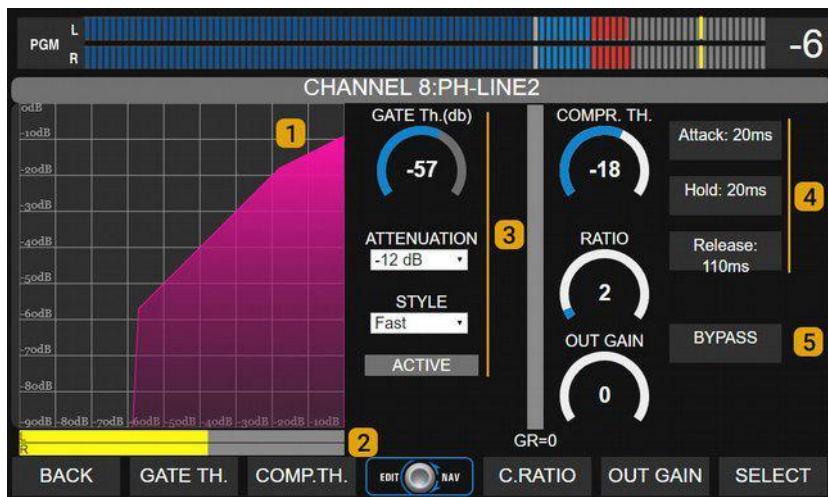
ON/OFF: Turn on/off the band. To switch the status, touch the option on screen.

4 – BY-PASS: Disables the EQ. Bypass also appears into the PROCESS screen. To switch its status, touch the icon on screen..

5 – SELECT: Switch's on the mode SELECT, to choose a channel and make an action.

6 – BACK: Returns to previous screen.

5.9.2 DYNAMICS



The DYNAMIC stage has a noise gate and dynamic compressor. Processor settings can be saved in the current scene (see SCENES screen).

2 – LEVEL: Peak level at the compressor input (dBfs).

Navigation

TURN
 Turn to choose an option.
 The encoder navigates the options:
 → GATE THRESHOLD → COMP THRESHOLD
 → RATIO → OUT GAIN → ATTACK → HOLD
 → RELEASE →

TOUCH
 The functions ATTENUATION, STYLE, BY-PASS are change using the touch screen.

3 – GATE: noise gate.

GATE Threshold: Level in dB below which the gate closes.

ATTENUATION: Gain reduction applied to the signal when the gate acts.

STYLE: This option changes the recovery time between preset values.

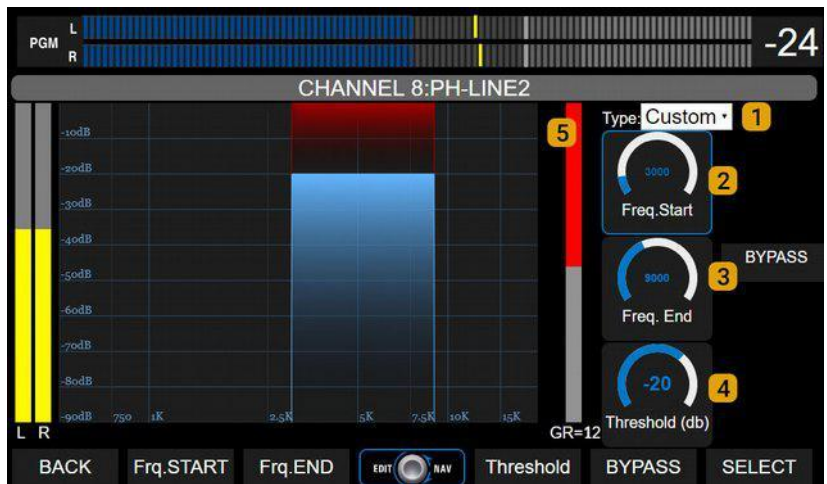
ACTIVE: Is an indication that lights red when the gate closes.

1 – Transfer curve: Graphical representation of the dynamic processor input/output curve, including the gate and the compressor.

4 – COMPRESSOR: Controls for adjusting the compressor.

5 – BYPASS: Disable the dynamic processing.

5.9.3 DE-ESSER



Microphone inputs 1 to 4 have de-esser, for sibilant reduction. The de-esser works as a multi-band compressor; attenuating a defined frequency range when the signal level exceeds the threshold value. It has the following controls:

Navigation



The encoder navigates the options:
 → **FREQ.START** → **FREQ.END** → **THRESHOLD**
 → to edit proceed as in the previous cases.



The features **TYPE** and **BY-PASS** are switched using the touch screen.

1 – Type: Presets. Changes the behavior of de-esser.

2 – Frequency start: Lower frequency for the working range. Usual values are between 4.500 to 5.500 Hz, according to the characteristics of the voice.

3 – Frequency end: Upper frequency for the working range. Usual values are between 7.000 to 10.000 Hz, according to the characteristics of the voice.

4 – Threshold: Level in dB. When the signal level within the working range falls below the threshold, it is attenuated in a 15: 1 ratio

5 – Gain reduction: Shows the attenuation applied, in dB.

5.10 Scenes and user profiles



It is accessed from the main screen by pressing the SCENE button. It contains the options for SCENES management and USER profiles.

Navigation



The encoder navigates the list of scenes.



All options operates using the touch screen.

1 – USERS: There are three user profiles with different access permissions. The restrictions of use for the on-board screen and the remote web inter-face are the same.

BASIC USER: Is the profile with more restrictions. Logged with this user, the operator:

- Don't needs password to login.
- Can't access to advanced settings.
- Can load any scene, but can't save changes neither create new scenes.
- Can see the settings and status of the processors, but cannot modify their parameters or turn on/off processors in the scene.
- Can temporarily change basic channel options: GAIN; LABEL; PANNING; CHANNEL ACTIONS. Is not allowed to save changes to the scene.

EXPERT USER: This profile has a medium level of restriction. Logged with this user the operator:

- Needs the password to login (default: expert). The password can be changed only by logging with ADMIN profile.
- Don't have access to advanced settings.
- Has full access to the processors.
- Can change the input gain, panning, label, in-put assignment and channel mode using the CHANNEL screen.
- Can save changes to current scene, except for the protected scenes (which requires ADMIN profile).
- Can create new scenes, even starting from a protected scene.

ADMIN USER: Has full access.

- It has password protection (default: admin). Allows you to change passwords from the SETTINGS screen.

- Can create protected scenes (read only) that can be used with all profiles but only can be changed by the ADMIN profile.

When booting, UX24 loads a predefined user profile (default ADMIN). At startup, the password is never requested. You can change the boot user from the screen SETTINGS → USERS; and change pass-words for ADMIN and EXPERT.

2 – SCENES: It shows the list of 12 scenes that can be loaded directly by turning and pushing the encoder. The currently active scene is highlighted in light blue. The selected scene is highlighted in orange.

3 – LOCK: The ADMIN user profile can create protected scenes (Lock): The scenes are indicated with a lock icon. EXPERT and BASIC profiles can load protected scenes, but cannot modify or delete them.

4 – SCENE MANAGER: The section for managing scenes (SCENE MANAGER) presents two groups of options: for the selected scene and for the current scene.

LOAD: Load the selected scene. Loading can be done by pressing the option on the screen; pressing the contextual button in the lower menu; or by turning and pressing the encoder. When loading a scene, a confirmation message will appear. If the action is not confirmed, the action is automatically canceled after 8 seconds. All user profiles can load any scene.

A scene can be loaded with one or more channels in the air. The channels remain on the air even if the input changes position (it will be updated). Audio will be dropped in case the previously aired in-put is not assigned to a channel in the new scene.

RENAME: Allows the user to rename the selected scene. If the console is being operated in the BASIC profile, this option is disabled.

COPY CURRENT: Copy the current scene over the selected scene. A message appears to confirm the action. If the action is not confirmed, it is automatically canceled after 8 seconds. If the console is being operated in the BASIC profile, this option is dis-abled.

SET TO DEFAULT: Reset the active scene to the factory default (see 4.2 Input/output default routing). If the console is being operated in the BASIC profile, this option is disabled.

SAVE: Saves the current settings, assignments, and processing settings to the active scene. The scene does not save the state of the ON-AIR and CUE buttons. If the console is being operated in the BASIC profile, this option is disabled. Protected scenes (LOCK) can only be modified by the ADMIN user.

5 – CHANNEL MAP: It opens a window that shows the configuration of all the channels, and allows to reorder them in a very simple way.

SWAP 2 CH

This function allows you to swap the order of two channels:

1. Touch the option SWAP 2 CH.
2. Select two channels from the list.

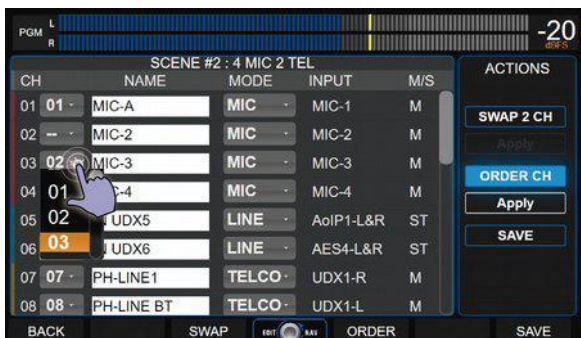


3. Touch APPLY. The channels will swap their positions.
4. Touch SAVE to save the changes to the scene.

ORDER CH

It allows to redefine the position of one or more channels.

1. Touch the ORDER CH option. A drop-down menu appears beside the names, that allows re-assign the position of each channel.



2. At the channel that wants to change, drop-down the menu by touching the arrow.
3. Choose a new position for the channel. Multiple channels can be redefined at the same time.

WARNING

If you choose a channel position that is already assigned to another input, the information on the destination channel will be overwritten when applying the changes.

4. Press APPLY to apply the changes temporarily. APPLY does not save changes to the scene. If you leave the scene, the changes are discarded.
5. For the changes to be stored permanently, press SAVE. The new channel arrangement is stored in the currently active scene.
6. To discard the changes, disable ORDER CH touching the option or press BACK.

SECTION 6 WEB REMOTE INTERFACE

All the features and configurations of the UX24 can be controlled remotely by connecting the con-sole to the LAN, and accessing the IP address with a WEB browser.

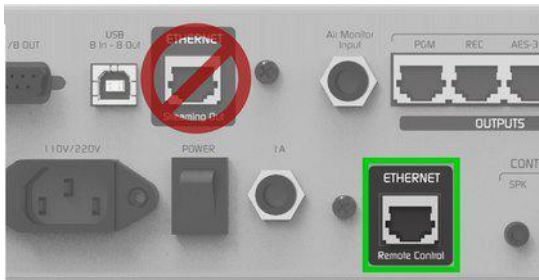
NOTE

Remember that you can expand to 18 or 24 the number of hardware faders, to have all channels on the surface UX24.

6.1 Connecting to LAN

Step 1

Connect the Ethernet port REMOTE CONTROL to the LAN, using the factory-supplied Ethernet cable.



WARNING

UX24 has two Ethernet ports: REMOTE CONTROL and STREAMING. Pay attention to avoid confusing port.

By default, the console comes with a dynamic IP address (DHCP enabled). The router of local network will assign a free IP address. The assigned IP address is dynamic, which can change if the UX24 is restarted. A static IP address can be as-signed from the system settings screen (SET-TINGS → SYSTEM).

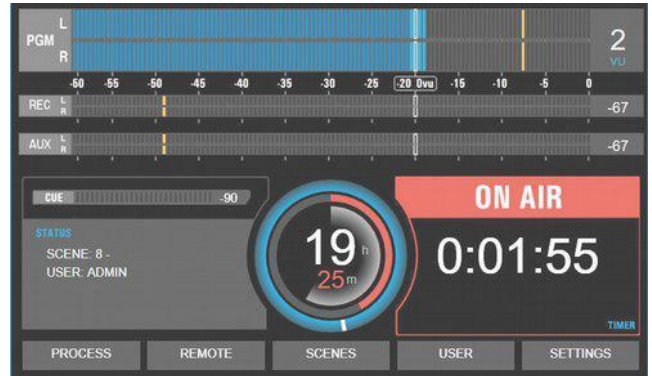
The assigned IP is shown on the main screen.



Step 2

From a computer connected to the same LAN (with cable or Wi-Fi) open a web browser (we recommend Google Chrome) and enter the IP address of the console.

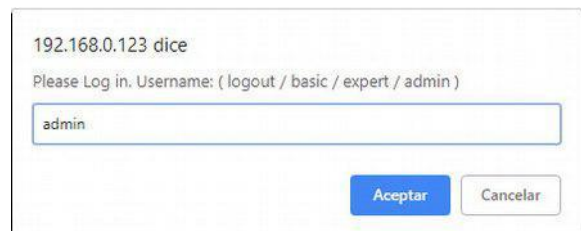
The main screen will open, showing the level indicators and a main menu.



WEB screens contain the same options as the screen integrated in the UX24, although the layout and shape of the controls may differ. Only the screens with the greatest differences are detailed below.

6.2 USER

Allows you to enter a user profile for the web interface, regardless of the user logged into the UX24 hardware. A dialog box will be displayed to enter the username, and then another to enter the password.



By default, the password is the same as the user's name. The Logout option leaves the console in the BASIC profile.

NOTE

Remember that three user profiles are available:

- ADMIN, with full access;
- EXPERT with partial access to some advances features;
- BASIC, whit restricted access.

By default UX24 starts loading the user profile ADMIN.

6.3 REMOTE


The remote operation interface can control all channels of the console. It is designed for touch screens, as an auxiliary controller to operate virtual channels (from 13 to 24 on consoles without UX6

Expansion modules); group communication channels (VoIP, cell phones, links, POTS) or manage auxiliary signals.

The monitoring panel allows to use the web interface as a full secondary mixer into auxiliary Studio.



6.3.1 Settings

 Visible channels are set by pressing the "pencil" icon. This setting can only be modified with AD-MIN user. The settings are stored in the current scene.

When you press the edit icon, a list of the 24 channels appears. The channels checked will be visible, always ordered from least to greatest.

CHANNEL	NAME	MODE	INPUT	VIEW
01	MIC-1	MIC	MIC-1	<input checked="" type="checkbox"/>
02	MIC-2	MIC	MIC-2	<input checked="" type="checkbox"/>
03	MIC-3	MIC	MIC-3	<input type="checkbox"/>
04	MIC-4	MIC	MIC-4	<input type="checkbox"/>
05	MIC-5 UDX5	MIC	UDX5-L	<input type="checkbox"/>
06	MIC-6 UDX5	MIC	UDX5-R	<input type="checkbox"/>
07	PH-LINE1	TELCO	UDX1-L	<input checked="" type="checkbox"/>

6.3.2 Mic and line channels

Each channel of the interface replicates the controls available on the UX24 hardware surface. Actions taken on the remote interface are reflected in the console.

BUSES: Assign the channel to a bus. The virtual bus VBUS do not have a hardware button. It is switched from the on-board touch screen (screen CHAN-NEL) or from remote Interface.

CUE: Turns on CUE on this channel. The audio listens through the CUE circuit of UX24.

ON AIR: ON/OFF the channel.

FADER: Channel level control. If the level is modified from the WEB interface, the console changes the level and shows the value on the OLED screen, which flashes indicating that the level of that channel was modified remotely. The faders do not change their position, as they are not motorized. If the operator moves the fader in the console, the level returns to the fader value and the virtual fader is updated in the WEB interface.

6.3.3 TELCO channels

Telecommunications channels include, in addition to the controls already seen, a RING / HOLD button that allows you to answer an in-coming call and put it on hold; and information about the status. Talk-back and dial functions must be done from the console surface.

6.4 PROCESS



From the PROCESS screen you can access the controls of the equalizer, the de-esser and the dynamic compressor. Its use is similar to that described for the on-board display (see 3.7 Audio processes).

1 – The processors are inserted in each of the inputs. Choosing an input from drop-down menu, the available processes are displayed. You can also choose a CHANNEL from the CHANNEL menu, and the processors of the input assigned to that channel will be displayed.

2 – In the case of parametric EQ, the ON / OFF buttons allow each band to be enabled or not; while boxes B1, B2, B3 and B4 allow you to select a band to display its controls. This method minimizes the amount of controls, facilitating use on touch screens.

3 – The icons allow access to the different processes. Depending on the selected input, the available processors change. For more details see 3.7 - Audio processors

SECTION 7 DIAGRAMS AND ANNEXES

Complementary documentation available at www.solidynepro.com:

Quick installation guides

Adapter UDX 2MIC: http://solidynepro.com/descargas/productos/ENG-UDX2MIC_Quick_installation_guide.pdf

Adapter UDX 2TEL y 2TEL-P: http://solidynepro.com/descargas/productos/ENG-UDX2TEL_Quick_installation_guide.pdf

Adapter UDX TEL+BT: http://solidynepro.com/descargas/productos/ENG-UDXTEL+BT_Quick_Installation_Guide.pdf

Diagrams

Inputs and outputs map (without Dante option)

http://solidynepro.com/descargas/productos/UX24_Quickguide_Inputs_and_Outputs_features.pdf

UX24 scenes default routing

http://solidynepro.com/descargas/productos/UX24_Quickguide_Default_scenes_routing.pdf

GROUNDING: General recommendation for a radio station

http://solidynepro.com/descargas/productos/Grounding_recomendations.jpg

Cables and kits for the installing

[Listing of cables and adapters \(PDF\)](#)

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SECTION 8 TECH SPECS

Main Features

- 24 channels; 12 faders on console's surface, expandable to 24 with 6-faders modules Solidyne UX-6.
- 24 virtual faders can be operated from the on-board touch screen.
- Internal WEB pages remote interface (HTML5) to remote control via LAN.
- Inputs assignable to any of 24 channels.
- 12 user scenes (inputs routing, channel settings, audio processors settings)
- 7" touch screen on board 1024 x 600 pixels
- OLED display on channel (label, input level, fader level, special info)

Inputs (32)

- 4 MIC inputs 48V phantom powered
- 4 balanced stereo lines
- 4 AES3
- 4 stereo USB (4 USB playing devices in a computer)
- 16 UNIDEX mono balanced (8 stereo) supports up to additional 16 microphones. 8 Telco devices
- DSP audio processing on each input

Outputs (28)

- 2 PGM balanced stereo
- 4 balanced stereo (supports source assignation)
- 8 unbalanced (mix-minus)
- 4 AES3
- 4 stereo USB (4 recording devices in a computer)
- 2 streaming AoIP stereo (RTP, Icecast/Shoutcast)
- 2 monitoring for Control Room (speakers and headphones)
- 2 monitoring for Studio (speakers and headphones + talkback)

GPIO, Intercom and auxiliary devices

- 2 "ON AIR" tally light (Studios A & B). 12 VCC, 250ma
- 4 GPI - general purpose inputs (active high 3.3 ~ 15 v)
- 8 GPO – general purpose outputs (7 open collector; + 24V @ 250 mA + 1 x 12V DC, 250 ma)
- 1 unbalanced stereo input for external tuner
- 1 tack-back input from studio (Studio Box connector)
- Built-in talk back microphone
- 4 Intercom buttons can be assigned to outputs
- Independent Intercom PTT in all TELCO channels (TLKBK/CUE buttons).

Audio specifications

- 24 channels
- 4 mix stereo buses (PGM, REC, AUX with direct access from UX24 surface, VBUS assignable from screen.
- 1 bus PFL (CUE)
- 24bits SR@48 KHz
- DSP audio processing for all inputs. Fixed processors on each input. Parametric EQs of 3 & 4 bands. Noise gate. Compressor/limiter. De-esser (availability depends on the input type).
- Mix-minus sends and automatic talkback/intercom (TELCO)
- **LATENCY:** 1,2 mS (analog line to analog output) // 1,4 mS (MIC to output using EQ + Dynamics + De-Esser)

Digital inputs and outputs (AES3, USB, AoIP)

- RD: 120 dBA
- Freq. response: 20Hz-20KHz ± 0,1 dB
- THD: < 0,002 %
- Level Reference : 0 dBFS digital = + 24 dBu analogue
- Signal Format : AES-3 (AES/EBU)
- I/O Impedance : 110 ohm Balanced
- AES input /Output Compliance : 24 bit with sample rate conversion, 44.1 kHz to 96 kHz input (Sample rate Capable)
- Internal Sampling Rate : 48 kHz
- A/D –D/A Conversion : 24 bit or better

USB

- 1 USB 2.0 (4 stereo play/rec devices in a computer)
- ASIO 2.2 (supports simultaneous play running different software's with ASIO and WDM)
- Supports VST HOSTS of 32-bit and 64-bit to run plug-ins in real time.
- Supports multi-client (more than one ASIO application running at the same time)
- Windows 10/8/7 (32 & 64 bits)

Analog inputs

- Input level: max: +26dBu, min: -24dBu , nominal: +4 dBu
- DR: 112 dBA
- Frequencies response: 20Hz-20Khz \pm 0,25 dB
- THD+N : 0,01 %
- Input Impedance : \geq 10 K ohms balanced
- Input Headroom : 20 dB above nominal input.

Mic inputs

- Input level: max: -24dBu, min: -75dBu , nominal: -50 dBu /150 ohm
- Noise: EIN @-50dBu input: -121 dBA
- Frequencies response: 20Hz-20Khz \pm 0,5 dB
- THD+N : 0,01 %
- Individual phantom power +48v
- Input Impedance : \geq 1 K ohms balanced
- Mic/Line Input Impedance : \geq 3 K ohms balanced
- Line Analogue input /Output of +4 dBu

Analog outputs

- Flexible routing
- Balanced outputs
- Level: Nominal: +4 dBu Max: +24dBu
- DR: > 110 dBA
- Frequencies response: 20Hz-20Khz \pm 0,5 dB
- THD: type 0,005%@1Khz
- Output (Source) Impedance : \leq 60 ohms balanced
- Output load Impedance : 600 ohm

Dante AES67 (optional)

- The option DANTE manages 16 x 16 channels and supports any DANTE network up to 512 x 512 channels.
- The module AES67, replaces 4 stereo lines and 4 UNIDEX stereo inputs by 16 Dante AoIP inputs.
- AoIP outputs: PGM, REC, AUX, CR headphones, Studio headphones and 3 stereo assignable by the user.

Dimensions and weight

- Dimensions UX24 (12 faders):
 - wide: 730 mm
 - deep: 455 mm (550mm with the rear wing to hide cables)
 - height: 130 mm
- Packaging dimensions: 850 mm x 610 mm x 270 mm
- Weight: UX24= 8 Kg
 - Adapters UDX: 0. 33 Kg each one
 - Kit cables RJ45: 4 Kg
 - With packaging UX24 + Cables= 15 Kg