Iris Amp series

User Manual

for software version 1.6.0

Updated on 25/04/2025

Contents

EU Declaration of Conformity

CE This product carries the CE-Mark in accordance with the related European Directives. CE marking is the responsibility of Streamit B.V. The Netherlands.

Disclaimer

This manual has been validated and reviewed for accuracy. The instructions and descriptions it contains are accurate for the Streamit Iris devices at the time of this manual's production. However, later Iris devices and manuals are subject to change without notice. Streamit assumes no liability for damages incurred directly or indirectly from errors, omissions or discrepancies between Iris device and the manual.

Understanding of Instructions

WARNING: These are instructions which can cause harm to people or damage to the device if not followed properly. It is important to read and follow these instructions carefully.

IMPORTANT: These instructions are important in order to understand the correct behavior of the device.

Notices about trademarks

- The Iris family of devices is a registered trademark of Streamit
- Streamit is a registered trademark
- All other trade names that are used in this manual are owned by their respective owners

1   Getting started

This is the consolidated user manual for the Iris Brick and the Iris DSP Amplifier Module running software version 1.6.0.

We strongly recommend reading the manual thoroughly before you start installing and using the device for the first time.

1.1   Introduction

Iris devices connect high-quality audio systems wirelessly. Employing DECT technology and a highly versatile audio codec you can move full-band audio unfailingly and securely with minimal latency. Connect media players and audio mixers with your active or passive speakers reliably when wired connections are expensive or impractical.

The broadcasts high quality audio to the receiver devices that have joined its network though the pairing mechanism.

Any receiver device (RX-device), including the Iris wireless amplifiers, are compatible with and interoperable with all available transmitter variants.

With the built-in relay control functionality, digital input pin changes on the transmitter get broadcasted to the digital output pins of all connected receivers, to control speakers and amplifiers and save energy.

Based on the application requirements, many Iris devices can be paired (wirelessly connected) to form wireless audio networks. Until the the mobile app **'Iris configurator'** becomes available, pairing devices is done using the Iris Service Tool.

For more information on Streamit products and technologies, we invite you to visit our website (https://www.streamit.eu).

1.2   Important safety instructions

Use the following safety guidelines to help ensure your own personal safety and to help protect your equipment and working environment from potential damage.

1. Read these instructions.

2. Keep these instructions.

3. Follow all instructions.

4. Keep your equipment away from extremely hot or cold temperatures to ensure that it is used within the specified operating range:

    Operating temperature: -20°C to 50°C

    Humidity: 30% to 90%, RHL non-condensing

5. Install in accordance with the manufacturer's instructions.

6. Only use accessories specified by the manufacturer.

7. Refer all servicing to qualified service personnel. Servicing is required when the product has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the product, the product has been exposed to rain or moisture, does not operate normally, or has been dropped.

8. The power supply and power cord for this product is intended for indoor use only.

9. Use only the supplied power adapter (if applicable).

2   Installation

This section of the manual covers the installation of your Iris audio networking devices, and includes some general installation notes.

2.1   Unpacking your device

Carefully unpack the device and the supplied materials. Make sure that all components listed in the table below are included:

Product name	Iris Brick Amplifier	Iris DSP Amplifier Module	Iris DSP Amplifier Module Starterkit
Article number	IBA-250	DAM-250	DAX-250
USB-A to USB-C cable 2m	1x	1x	1x
C7 mains cable with EU plug 2m	1x		
Iris Brick Amplifier IBA-250	1x		
Iris DSP Amplifier Module DAM-250		1x	1x
External antenna	1x	1x	1x
Mounting accessoires		1x	1x
Mains cable with a PowerCON connector			1x
Antenna mounting cable		1x	1x
DAM I/O demo board			1x
Speaker cable with 2 SpeakON connectors			1x

2.2 Device appearance and connections

The Iris Brick

The Iris Brick also referred to as the AMP-device, is connected at the playout location to one or more passive loudspeakers.

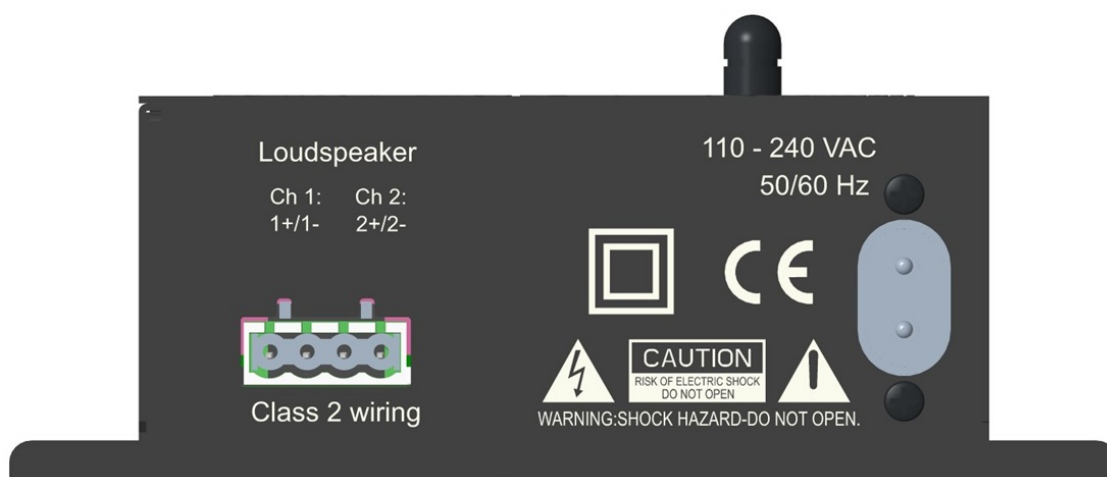Looking at the hardware, on the front side we find:

- The external antenna connector

- 2 LEDs used to communicate status information

- The USB-C connector used for configuration and firmware updates.

- The Phoenix Contact plug for the output relay control and factory reset.

On the back side we find:

- The Phoenix Contact plug for connecting the output to the loudspeakers.
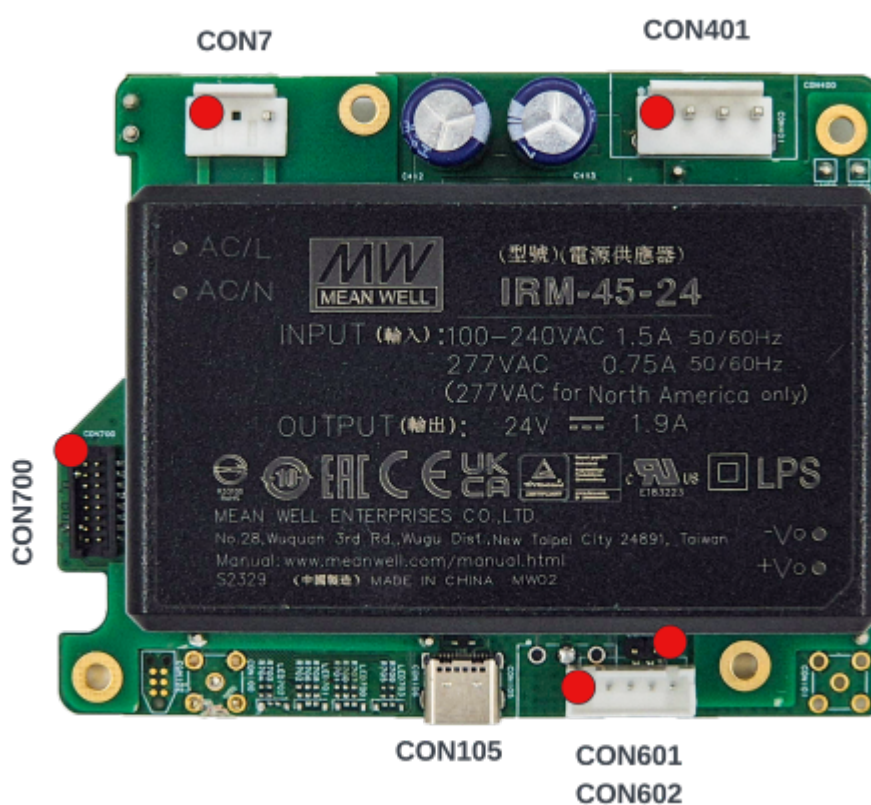
- The mains power connector.

The Iris DSP Amplifier Module

The Iris DSP Amplifier Module also referred to as the AMP-device is usually mounted on metal in a passive loudspeaker.

Looking at the hardware, on the top side we find:

CON7	Mains power connector. The pcb-side is a JST B2P3-VH connector.
CON105	USB connector for configuration & firmware updates.
CON401	The Loudspeakers connector, with pin configuration detailed in the table below

CON401 - Loudspeakers connector (JST B4P-VH)			Description
Name	**Pin #**	**I/O**	
CH 2-	1	O	The GND signal of the channel 2 speaker.
CH 2+	2	O	Amplified speaker signal of channel 2.
CH 1-	3	O	The GND signal of the channel 1 speaker.
CH 1+	4	O	Amplified speaker signal of channel 1.

❗ Bridging the speakers is not allowed as it can cause damage to the amplifier.

CON601   The battery charging jumper

❗ Please remove the jumper when using the battery charger pcb (in development). This jumper connects PVDD with +24V.

CON602   The battery connector, with pin configuration detailed in the table below

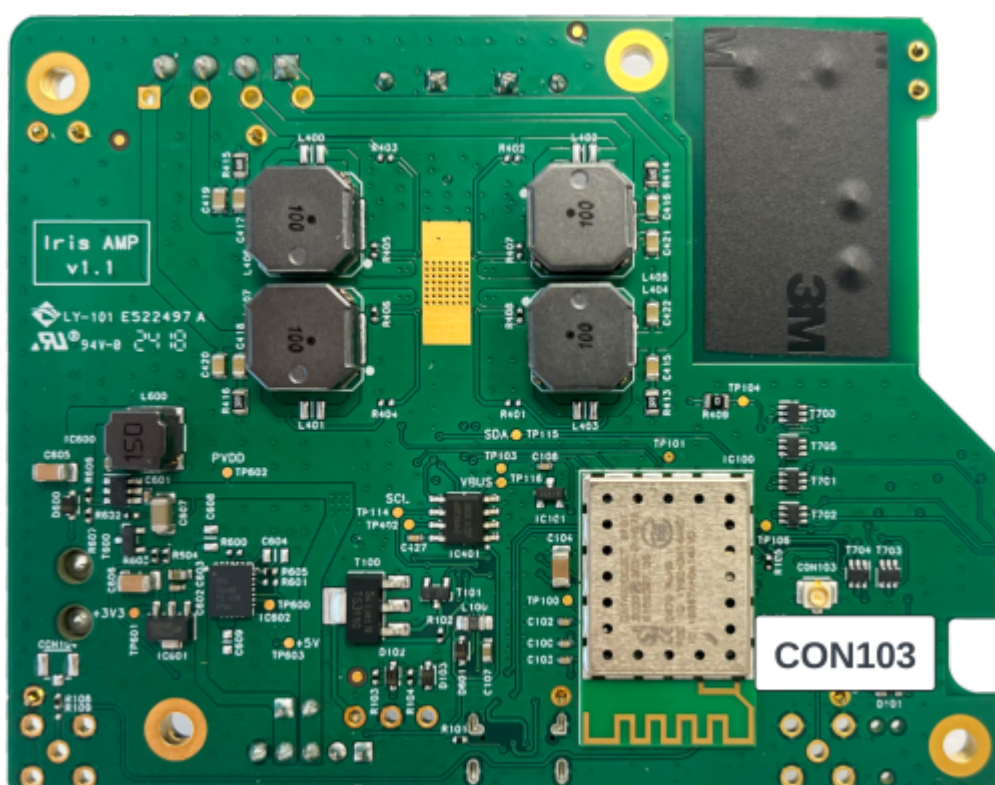| CON602 - Battery connector; JST B5B-XH			Description
Name	**Pin #**	**I/O**	
CHARGER_EN	1	I	This pin enables the battery charger.
BAT_LOW_CHARGER	2	O	This is the digital battery low indicator.
PVDD	3	O	This is the supply voltage of the audio amplifier. The absolute maximum voltage is 26.0V; recommended is 24V.
+24V	4	I	This is the output of the power supply module.
GND	5	O	Power GND.

CON700   The I/O connector, with pin configuration detailed in the table below

CON700 - I/O connector; 16-pin 1.27 pitch			Description
Name	**Pin #**	**I/O**	
+3.3V	1	O	This pin is used to power the LEDs
RELAY_IO_OUT	2	O	An open-collector output. Max voltage on this pin is 42V. Max current is 1.4A.
LED-VU40	3	O	LED output
RELAY_IO_IN	4	I	A digital input with internal pull-up. Maximum input voltage is 3.3V.
LED-VU20	5	O	LED output
BAT_LOW_CHARGER	6	I	Can be connected to RELAY_IO_IN, in case battery charger module is used.
LED-VU10	7	O	LED output
LEDG	8	O	LED output
LED-VU_CLIP	9	O	LED output
LEDB	10	O	LED output
LED0A	11	O	LED output
LEDR	12	O	LED output
LED0B	13	O	LED output
LED1B	14	O	LED output
LED1A	15	O	LED output

CON700 - I/O connector; 16-pin 1.27 pitch			Description
GND	16	O	This pin is used for the GND of the Digital Input/Output.

On the bottom side we find:

CON103   U.FL antenna connector.

2.3   Connecting the Iris

Connecting the power

Plug the power cord in the the mains outlet. In the process we ask that you play careful attention to the following instructions:

⚠ Always ensure your hands are dry before plugging in or unplugging the power cord from the mains.

⚠️ Do not cut or damage the power cord and do not place heavy objects on the cord. This can cause short-circuit, resulting in electrical shocks or even fire.

⚠️ Pulling on the power cord can damage the wire or insulation, potentially causing electrical shocks or fire.

⚠️ Using power or cords other than the one recommended for your Iris can result in overheating and damage to your device. This can cause fire, electrical shocks and other hazards. Always use the supplied power cord.

⚠️ Exposing your Iris to rapidly changing temperatures can result in condensation (small amount of water) on the inner and outer surface of your device. To ensure a long lifespan for your device, this should be avoided. If condensation occurs, wait until you device is completely dry before using it again.

Connecting the audio input on the TX-device

The analogue audio source is connected to the audio input of the TX-device. The required cable has an RCA connector (2x tulp male) for the Iris side, while the other end depends on the type of connector on the source device. Please note that audio cables are not included.

❗ In case a mono audio mode is used, make sure that the input from the mono source is connected on the LEFT (Ch1) connector.

Connecting the speakers to the AMP-device

Make sure the used speakers are specified to handle the full output of the AMP device. Connect the speakers wire to the AMP-device, following the pin configuration instructions in Device appearance and connections for the Iris DSP Amplifier Module.

2.4   General installation notes

For optimal performance of the audio network, proper placement of the devices is essential.

Attention needs to be paid to the following:

- Always try to have the TX-device placed in the "middle" of the installation.

- Make sure to fasten the external antenna tightly for improved range and stability.

- Try to place the products as high as possible and prevent moving obstacles between the devices.

- Use the Iris Service Tool to monitor the received signal strength of your RX-device, and calibrate the antenna orientation for best reception.

Thanks to the stability of the solution, it is possible to install hundreds of devices at a single site. For such large installations, the following is important:

- There can be a maximum of 50 RX-devices in one audio network.

- There can be a maximum of 10 audio networks at one site.

2.5   Interfacing to the AMP-device

The following paragraphs will provide guidelines to the electrical interfacing and application of the AMP-device

Powering the AMP-device

The AMP-device is a Class-II and is mains powered. So no earth connection is required.

The mains voltage should be between 85 and 265 VAC / 50-60 Hz.

Optionally in the Iris DSP Amplifier Module, the mains power supply can be replaced by a rechargeable battery. Please note this option is not available yet from Streamit.

In this case a battery interface pcb needs to be connected to CON602 and the jumper on CON601 needs to be removed.

In this setup, the battery can be charged through the internal power supply.

Please note that the maximum battery voltage should be below 26V.

Above 26V a PVDD over-voltage error will be generated.

The device will be damaged once the voltage comes above 28V.

Loudspeaker outputs

The AMP-device has 2 BTL loudspeaker outputs which cannot be bridged.

The impedance of the loudspeakers should be between 4 and 8 ohms.

The maximum output power is 2x 50 W.

The outputs are fully EMI protected, so it is not necessary to add extra filter components.

The loudspeaker outputs can be configured in several ways through the DSP:

1. Stereo

2. Dual mono (in case the wireless interface is set to mono, the input audio signal can be routed to both outputs).

3. X-over (so each output is fully controlled by the DSP, which is ideally for 2-way speakers).

LED outputs

The Iris Brick has two integrated LEDs, but the Iris DSP Amplifier Module potentially has much more options. See LED status information for more information.

Relay output

A great feature is the digital output for switching an external power source through a relay. This option is available through a Phoenix connector on the Iris Brick and the I/O connector on the Iris Brick.

Antenna input/output

The mono or stereo audio signal is received through the wireless interface. In the Configuration chapter is described how you configure the antennas.

We recommend to use the external antenna for a loudspeaker, to guarantee maximum reception. Please note in the Iris Brick only the external antenna can be used because of the metal casing.

3 Building your own wireless loudspeaker

The Iris Brick and Iris DSP Amplifier Module (AMP-devices), but also the Iris Receiver can all be integrated with your loudspeakers.

- The Iris Receiver is ideal for loudspeakers with an integrated amplifier.

- The AMP-devices are ideal for loudspeakers without integrated amplifiers.

The AMP-device features a two-channel amplifier with integrated DSP, allowing you to create the crossover electronically for significantly improved audio performance.

More details on building your own wireless loudspeaker are found in the Technical Manual.

4 Configuration

The configuration of your Iris audio networks will be done using the Iris configurator, a companion mobile app for Android and iOS. The mobile app is currently under development and not yet available to the user.

For as long as the mobile app is not available, the Iris Service Tool should be used. The Windows PC app initially designed for service purposes, has been updated to allow users to configure and monitor their Iris audio networks.

All receiver device types, including the Iris wireless amplifiers, the Pro and standard receivers are compatible with and interoperable with all available transmitter variants (standard and Pro).

4.1 How to ensure CE compliance

The final product containing the AMP-device must comply with the relevant standards of the products category.

Note that it is the customer's responsibility to verify that the end-product complies with the required standards of the market for which the product will be commercialized in.

All AMP-devices have CE and WEEE approval.

They meet the requirements of the Radio Equipment Directive (RED): 2014/53/EU.

They also meet the RoHS standards according to the requirements of 2011/65/EU & (EU) 2015/863.

These requirements are covered in the followings standards:

Safety	EN 62368-1
CE-RED with notified body	EN IEC 62311 EN 50665 EN 301406 EN 301489-1/-6/-17
CE-EMC	EN 55032; EN 55035
CE-RoHS	IEC 62321

The certificates and reports can be supplied upon request.
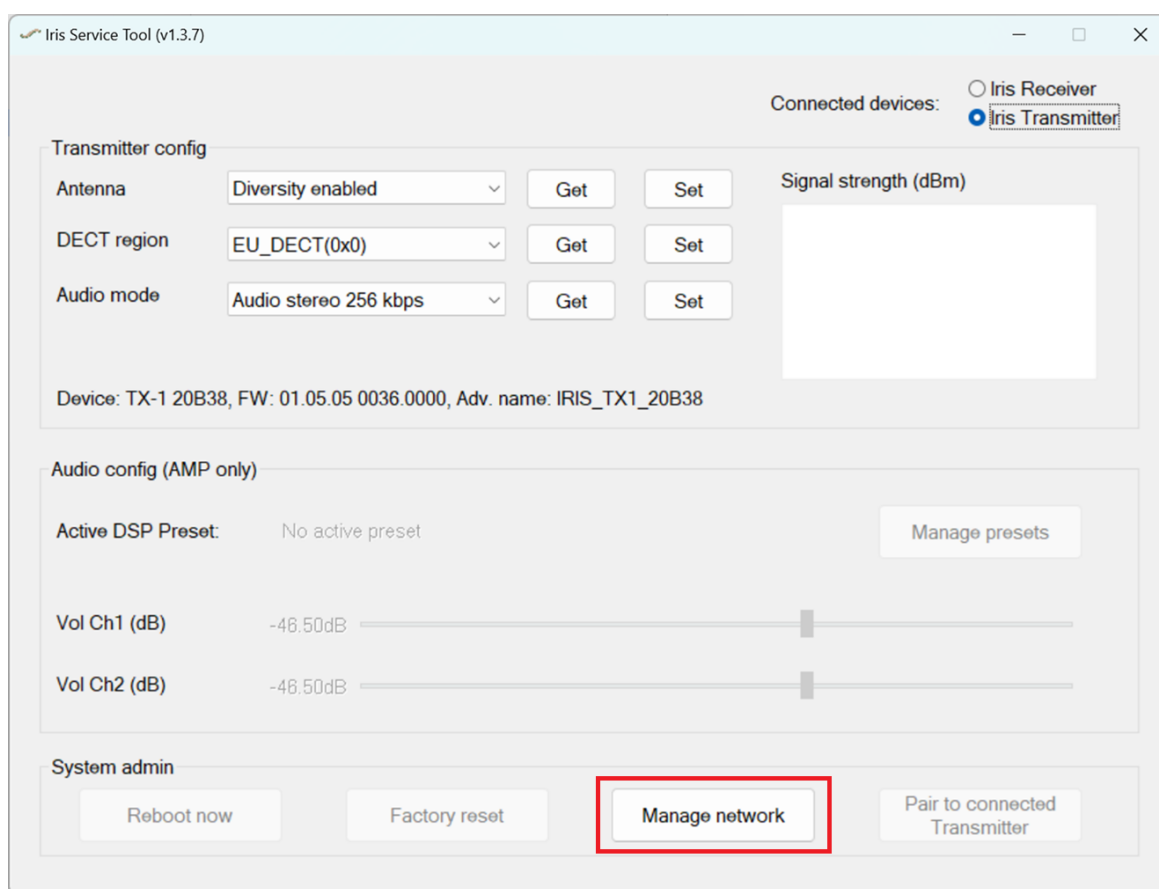
4.2 Setting up an audio network

 You can configure the individual Iris devices as well as the audio network using the Iris Service Tool.

To add a receiver device to the audio network, both the TX-device and the RX-device must be connected via USB to the PC where the tool is running.

- Start the Iris Service Tool and make sure both TX-device and RX-device are connected.

- Select the TX-device and make sure the transmitter configuration (the DECT region in particular) is correct. Unless you have a good reason to use a fixed antenna setting, the (default) diversity mode is likely the best option.The audio mode setting should align with your application's requirements. Higher bitrates enhance frequency response but may slightly reduce operating distance. When changing settings like the audio mode or the DECT mode, the TX-device requires a power cycle. Simply unplug the USB cable and then plug it back in.

- Select the RX-device and make sure the DECT region configuration matches that of the TX-device. When changing settings like the DECT mode, the RX-device requires a power cycle. Simply unplug the USB cable and then plug it back in.

- Press the button "Pair to connected Transmitter". Once pairing has completed, a dialog will inform you that the TX-device requires a power cycle. Make sure to follow this instruction.

- A couple of seconds after the power cycle the RX-device will be able to listen to the broadcast and the signal strength monitor will display a value other than -110dBm.

- Follow the same steps to add another RX-device

Each Iris audio network supports up to 50 receiver devices. Press the 'Manage network' button from the Transmitter configuration page to list the receivers or remove receivers off the network.

4.3   Relay control functionality

The Iris has been designed to facilitate switching of equipment such as amplifiers or active speakers whenever audio is not required.

With the relay control functionality, digital input pin changes on the transmitter are transparently communicated to the digital output pins of all receivers in the audio network. This is default behavior and requires no configuration.

To close a circuit connected on the receiver side to the Output and Ground and power on your equipment, you short the Input pin to Ground on the TX-device. Releasing the Input on the transmitter will break the circuit on the receiver side and the connected equipment will turn off.

The relay circuit is out of scope for this manual. Please check the electrical details in § Technical specifications.

5   LED status information

The Iris Brick amplifier features two status LEDs.

A LED can be switched **off** or light up: **solid**, **slow blink (** **)**, **fast blink(** **).**

LED: Status	
	Paired to a TX-device and listening to the broacast (audio channel is active)
	Contains pairing information, but TX-device is not reachable (not listening to broadcast)
	Locked to a TX-device, but audio channel inactive (should not happen)
	Not paired to a TX-device
	Pairing mode is active
	There is an issue with the DECT hardware or interface

LED: Signal (Not yet implemented)	
	Not listening to a broadcast
	Listening to broadcast and not muted -> RSSI above -65dBm
	Listening to broadcast and not muted -> RSSI between -65dBm and -85dBm
	Listening to broadcast -> RSSI below -85dBm
	Amplifier chip initialization/communication error
	Clipping

6   Updating your Iris

The complete software functionality of Iris technology has been implemented using either one or two embedded controllers. The main controller featured on all products implements all audio and networking functionality, driving the device's UI elements, which is sufficient for some products. Additionally, certain Iris products may include a secondary controller responsible for additional processing and remote-control connectivity, allowing users to manage and monitor audio networks.

The firmware update instructions including the release notes are available as a separate document on our website (https://www.streamit.eu/downloads/firmware-update-instructions/)

7   Technical specifications

	Iris Brick	Iris DSP Amplifier Module
Wireless		
Wireless technology	DECT 1.9GHz	
Reception Range	50m indoors to 300m outdoors	
Latency	16.5ms	
Synchronicity between receivers	0.15ms	
Internal antenna	no	yes
External antenna	yes	
Analog audio		
Max Output Power @4-8Ω	2x50W	
Audio frequency range	20 Hz to 20 kHz	
Signal-to-noise ratio (SNR)	>90 dB	
THD+N(@1 kHz)	<0,1%	
Audio DSP	About 100 configurable biquads Volume control / limiter Dynamic range compressors Multiband DRC Dynamic EQ Delay up to 1x20 ms or 2x10ms X-over	
Electrical		
Power supply	Integrated	
Operating voltage	100~240VAC/50~60Hz	
Power consumption (AC)	Max 45W, <1W (idle)	

	Iris Brick	Iris DSP Amplifier Module
Digital input		
Logical low	-	<=0.8V
Logical high	-	>=2.5V
Internal pull-up resistance	-	10 kΩ
Maximum input voltage	-	3.3V
Digital output		
Maximum switching voltage	-	42V
Maximum output current	-	1.4A
Mechanical		
SMA antenna connector	female	U.FL
Audio output connector	terminal block	pinheader 0.1"
Power connector	C8	pinheader 0.2"
Service connector	USB-C	
Relay control input	terminal block (*1)	pinheader 0.025" (*1)
Relay control output	terminal block	pinheader 0.025"
LEDs	RGB (2x)	pinheader 0.025" (max 4 RGB leds)
Charger/battery connector	-	pinheader 0.05"
Dimensions (LxWxH)	150x100x52 mm	98x77x40 mm
Weight	590 gr	230 gr
Environmental and safety		

	Iris Brick	Iris DSP Amplifier Module
Operating temperature	-20°C to 50°C	
Humidity	30% to 90%, RHL non-condensing	
Regulatory compliance	CE, WEEE	
Radio Equipment Directive (RED)	2014/53/EU	
RoHS	2011/65/EU & (EU) 2015/863	

(*1) Can be used to factory reset a receiver device

(*2) No function yet

8   Protective measures

The audio amplifier of the AMP-device contains a range of protection features to avoid damage to the amplifier itself or the attached speakers.

The integrated protection system monitors a range of parameters to check if min/max thresholds are exceeded.

Exceeding the thresholds will trigger internal error events, some of these errros also can be monitored in the app or with a LED.
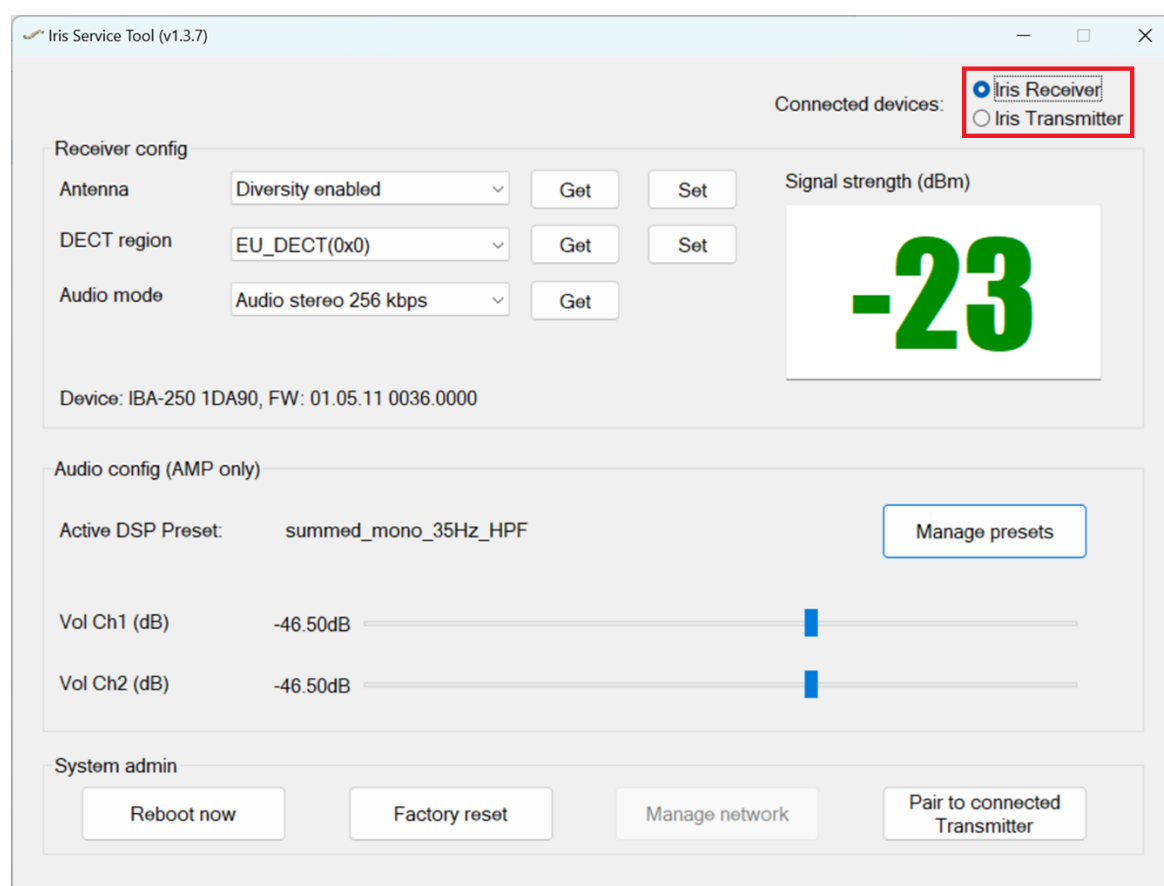
The following errors and warnings can be reported:

- Low temperature warning

- PVDD Over/Under-voltage

- Over-temperature warning/error

- Output DC

- Over-Current

- Clipping

More details about the protection features are described in the Technical Manual.

9   The Iris Service Tool

The Iris Service Tool is a Windows PC app initially designed for service purposes. The tool has been updated to allow users to configure and monitor their Iris audio networks, until the mobile app (Iris configurator) becomes available.

The Iris Service Tool communicates with Iris devices over USB. Simply run the executable and connect your device (TX, RX, or both) via USB to the PC running the tool. You can connect connect a maximum of one TX-device and one RX-device at a time. You can switch between the selected device using the radio button controls to the upper right corner. Based on the type of device and hardware capabilities, certain config options will be disabled.

When a RX-device is connected, it is possible to monitor the received signal strength and change the basic receiver configuration. When the RX-device is not paired (or out of range) the value -110dBm will be displayed.
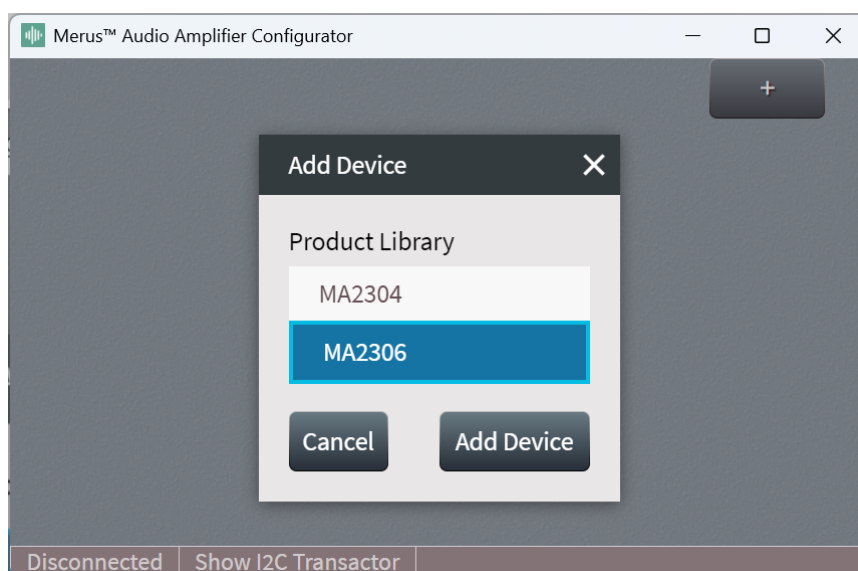
When an AMP-device is connected, the DSP configuration pane (for audio and presets) will be enabled.
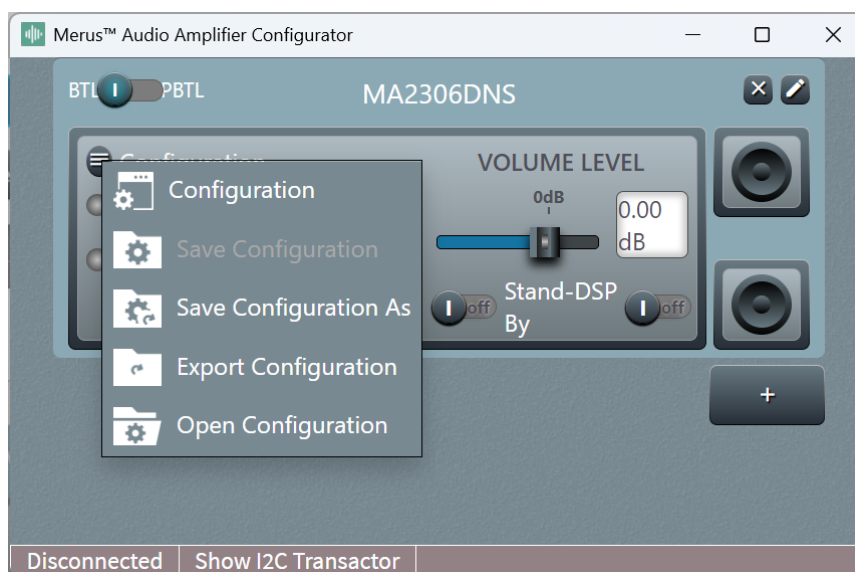
10   DSP configuration

On-the-fly DSP configuration of Iris AMP devices is not possible. A configuration is first prepared using Infineon's 'MERUS Audio Amplifier Configurator', then exported as a preset compatible with AMP-devices.

Using the Iris Service Tool you can upload up to 6 DSP presets to your AMP-device, and select which preset to activate.
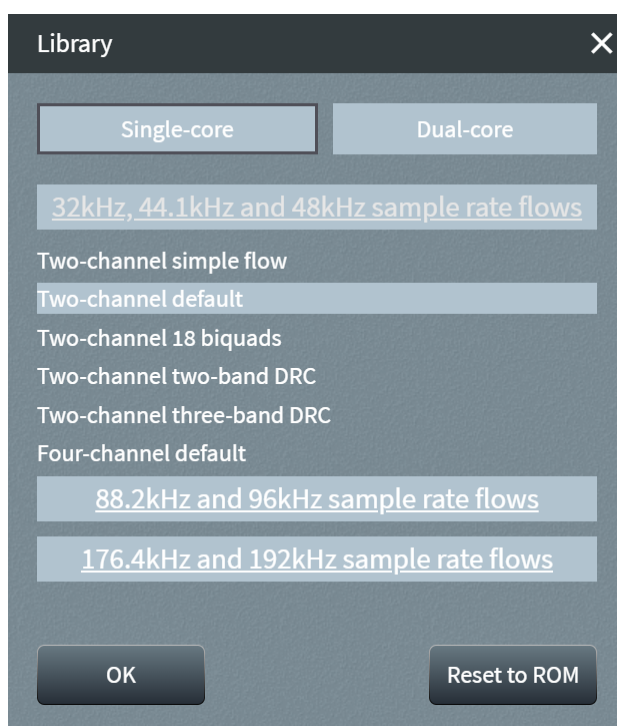
- Download and install the "MERUS Audio Amplifier Configurator" (https://streamit.eu/dl-content/temp/tools/merusaudioamplifierconfigurator_2.0.1.202402281050.zip)

- Start the tool and disregard the 'Disconnected' in the status bar, as the MERUS configurator does not connect directly to the Iris.

- To work in what is called the demo mode (without a device connected), we press the add button
  +

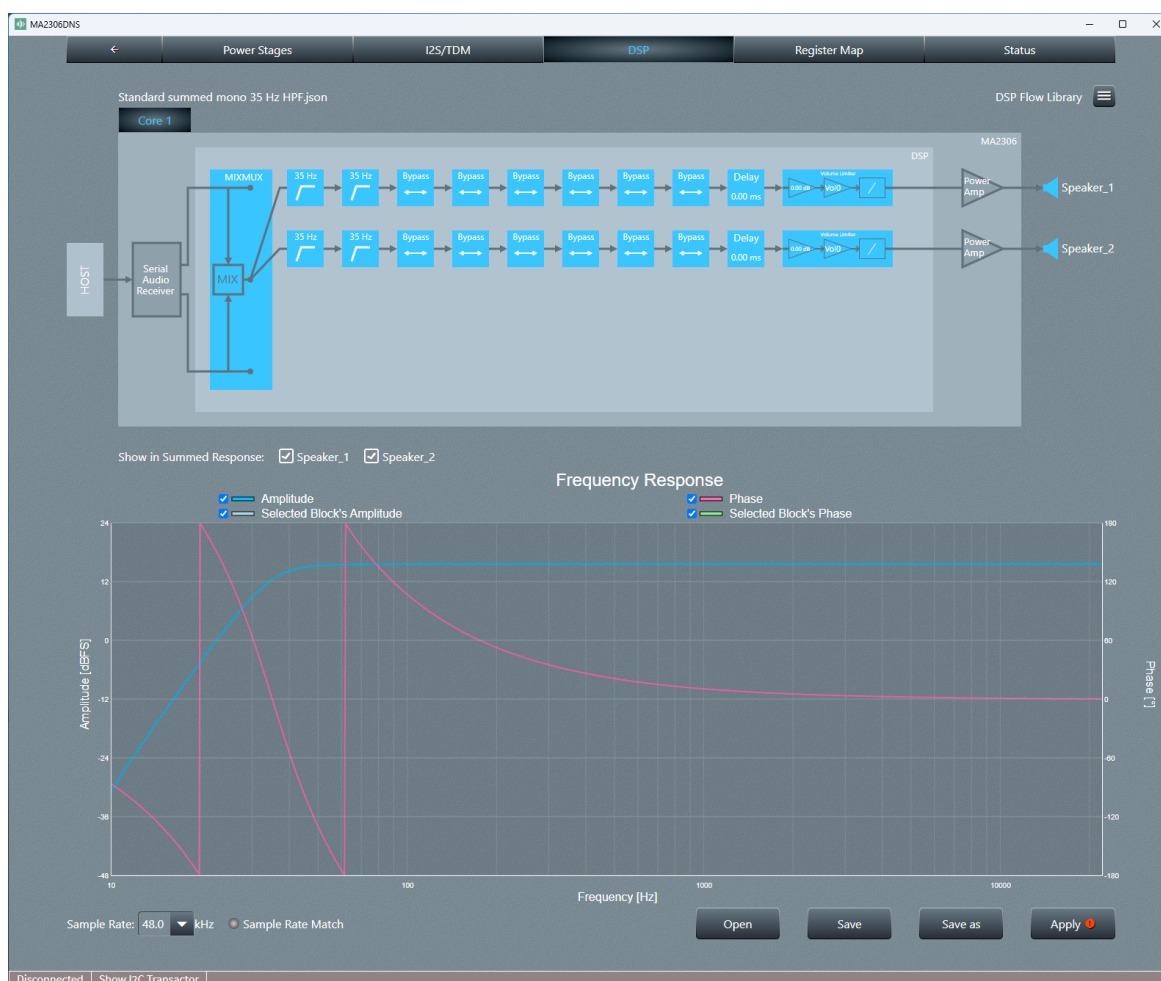- Select the product option MA2306, then press 'Add Device'

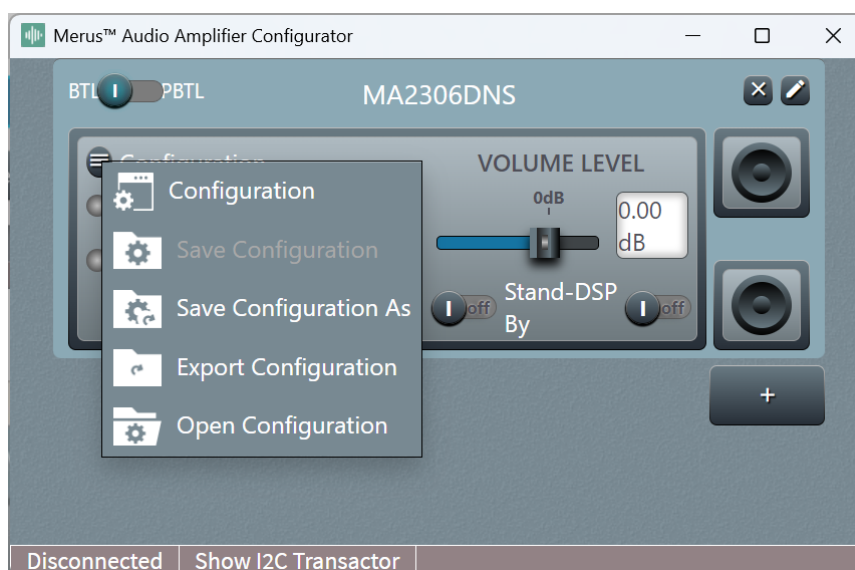- Access the configuration interface for the MA2306 using 🡒 and selecting Configuration

- Select the DSP tab, then access the DSP Flow Library and select the flow that best fits your needs, from the 48kHz section. It us also possible to open an already existing flow you might have saved earlier.
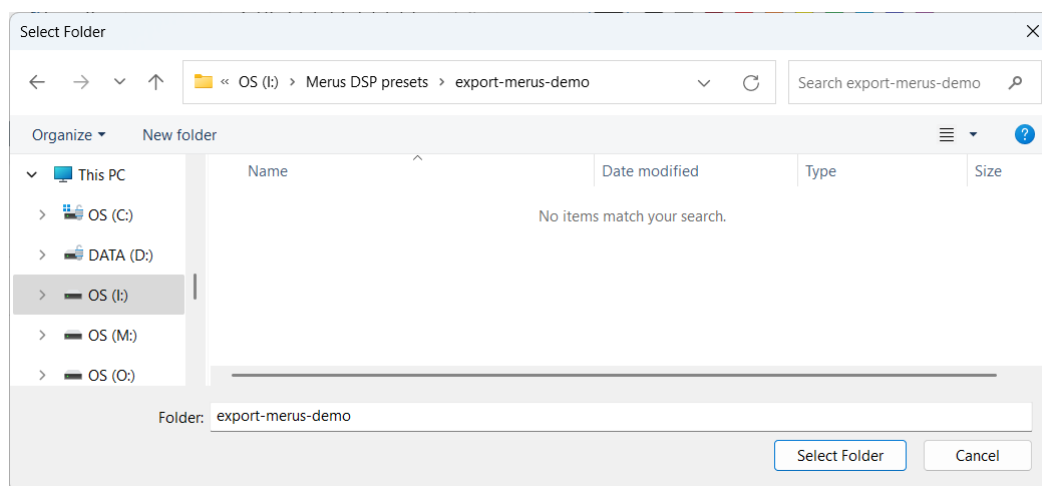

- Configure the DSP to your needs, eventually saving the DSP flow for later use (Save as/Save buttons at the bottom). and get back to the main application using the back-arrow tab.
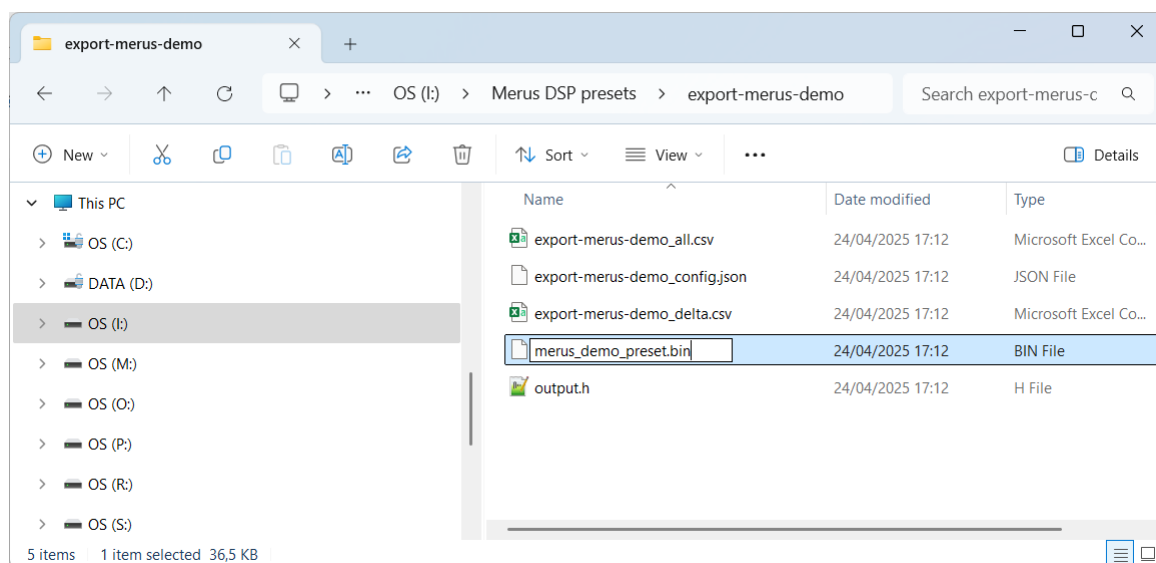
- From the main application screen we can export the DSP configuration we just created/updated, so it can be used as a preset for your Iris AMP-device. Open the configuration menu using and select the option "Export Configuration"

- Select a folder for the configuration to be saved, eventually creating a new one when needed.

- On confirmation of the folder to save your output to, the DSP configuration gets exported in different formats with different files being generated. The file we are interested in for using as a DSP preset for our AMP-device is the one named 'output' (without an extension). Give this file a logical name describing the preset and rename it making sure the '.bin' extension is added.

We can upload and activate our preset using the Iris Service Tool . When an AMP-device is connected, the DSP configuration pane (for audio and presets) will be enabled. Use 'Manage presets' to upload/remove and activate/deactivate presets.

	Slot	Name	Uploaded	Created	Checksum	Codesize	
	1	stereo_ch1_off	2025-04-24	2024-10-29	0x2734	2876	⊕
	2	stereo_ch2_off	2024-12-02	2024-10-29	0x2734	2876	⊕
	3	summed_mono_35Hz_HPF	2024-12-09	2024-12-09	0x8CD7	2876	⊕
	4	standard_stereo_35Hz_HPF	2024-12-09	2024-12-09	0xB03A	2876	⊕
⊘	5	merus_demo_preset	2025-04-24	2025-04-24	0x8CD7	2876	⊕
	6	-					

Upload preset

Delete   Activate

11   Troubleshooting

In this section several tools and options for troubleshooting are described. Please consider these options before contacting support, this might save you time.

11.1   Audio disruptions

When the installation is done properly and the Iris devices are placed correctly as described in §General installation notes, you will not experience any audio disruptions.

- Check and make sure the external antenna is fastened tightly.

- Check the received signal strength using the Iris Service Tool and select the antenna orientation that results in the strongest signal.

- Should the received signal be weak and not possible to improve, then evaluate the application requirements in the context of the audio mode setting. When 256kbps is used, you could experiment whether 128kbps results in less or no disruptions.

11.2   Find the PIN code

In order for an instance of the Iris configurator to be authorized to connect to an Iris, the device PIN needs to be entered. Unless the PIN was already changed, the default PIN should be used.

The default PIN is **'0000'** (without quotes).

Should the PIN have been changed but you no longer remember it, you will need to reset the device.

11.3   Factory reset

Resetting a device will apply factory default values for all settings and can be executed using the Iris configurator. This action requires using the factory reset PIN which is intentionally not documented. For help, please contact Streamit support.

Receiver devices running firmware 1.6 or newer can also be reset using the relay control input. This will require making a simple reset dongle using a terminal block connector, and connecting a wire between input and ground.

- Disconnect the power

- Plug the reset dongle in the RX-device

- Connect back the power with the dongle still attached

- Remove the reset dongle within 10 seconds of startup

- When the above procdedure was followed, a factory reset will be executed 10 seconds after startup.

❗ When you reset a device the pairing information will be lost, which in the case of a transmitter means the complete network.

12   More information

In addition to this manual, the following sources are available for your reference:

- Support page: https://www.streamit.eu/support

- Streamit site with additional manuals: https://www.streamit.eu

13 Support

For technical support regarding the Iris devices, software tools or technical documentation, please contact your dealer first. In case you are a direct customer of Streamit, please visit the support page (https://www.streamit.eu/support) where you will find the option to submit a support ticket.