AURON

System description and manual

V 1.0

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Dear Customer,

Thank you for choosing the AURON audio mixing system.

Specialists in the field of Radio/TV Broadcast and audio production designed the AURON.
It is a system that is capable of working in a multitude of applications that need
a 24-hour On-Air/Production system.

To be able to improve our products we always value suggestions once you have become familiar with your system. We will certainly learn from your comments and very much appreciate you dropping us a mail at sales@d-r.nl

We are confident that you will be using the AURON for many years to come, and wish you lots of success in your business.

And… please take some time to read this manual first to avoid unnecessary questions to yourself and to us 😊.

With kind regards,

Duco de Rijk
md

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1 Table of contents

2 Introduction

2.1 Purpose

The purpose of this document is to provide a detailed description about the entire system including hardware and software design and our thoughts. The document is also a manual for the user of this mixing console.

2.2 Scope

The scope of this document will start to focus on the general design choices which are made during the design phase of the project in combination with the corresponding implementations in hard- and software. Only the current status of the AURON Broadcast mixer will be discussed, no future features.

2.2.1 Abbreviations

ADC	-	Analog (to) Digital Converter
CAN	-	Controller Area Network
COBS	-	Consistent Overhead Byte Stuffing
VoIP	-	Voice over IP
PCB	-	Printed Circuit Board
DCAS	-	Digitally Controlled Analog Switch
FDR units	-	Auron Fader Unit
MSTR UNIT	-	Auron Master Unit

3 Design Overview

3.1 Background Information

The AURON, offers a true analogue signal path with flexible digital control. The console uses a split unit topology, a Master Unit connects to one or multiple 10 FADER units.

The AURON features a 7” HD touch display for metering and system control with K-ALPS or Motor faders and optional modules for DANTE AoIP, Dual Telco cards, USB Audio insert card and BT cards for wireless connection to phones.
The CRM/Studio section is very feature rich and with fully user assignable switches. The AURON Fader Unit can be customized to fit your studio needs. At the moment the following two channel configurations are available: Mic/Line and Telco/VoIP/USB.
Each channel features a 1” OLED display, four user-assignable switches offering great control while on air. All available channels are designed with extremely high audio quality in mind. Using quality components like THAT VCA’s and microphone preamps, a three band EQ with software defeat and with extremely low THD+N AD/DA conversion.

3.2 Features

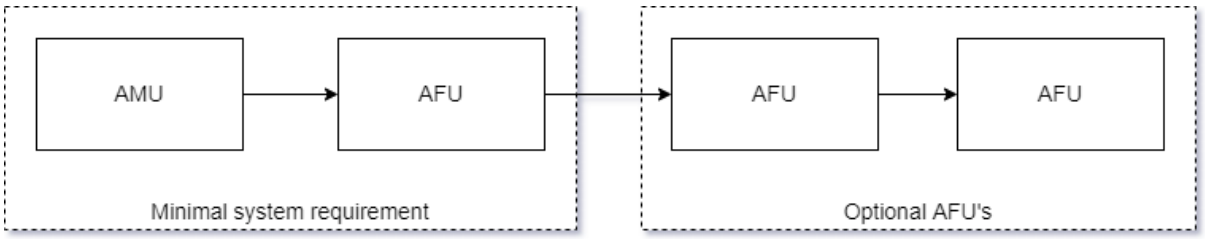
The AURON system has the following features:

- Max. 64 channels (based on CAN bus traffic)
- 2x Channel-type audio boards: Mic/Line, VoIP
- 6x Mix Bus: PGM, AUX, SUB, PFL, VT, Non-Stop
- 2x Monitor Buss : CRM, Studio
- 2x Headphone outputs: CRM, Studio
- 4x GPO on Master
- 1x GPO per channel
- 13x Source select per channel: Mic, Line, USB, Slot1 [1..2], Slot2 [1..8]
- 2x Slots for Dual Telco(POTS), Dual BT, Dante Cards
- 8x Level Controllable outputs:
    - CRM Speaker, CRM Phones, Studio Speaker, Studio Phones
    - SUB, PFL, MASTER, AUX.
- 1x Redundant power supply is possible by replacing the mains inlets by 2x 5pin XLR’s that are fed by two external 12 volt 5 Amp power adapters.

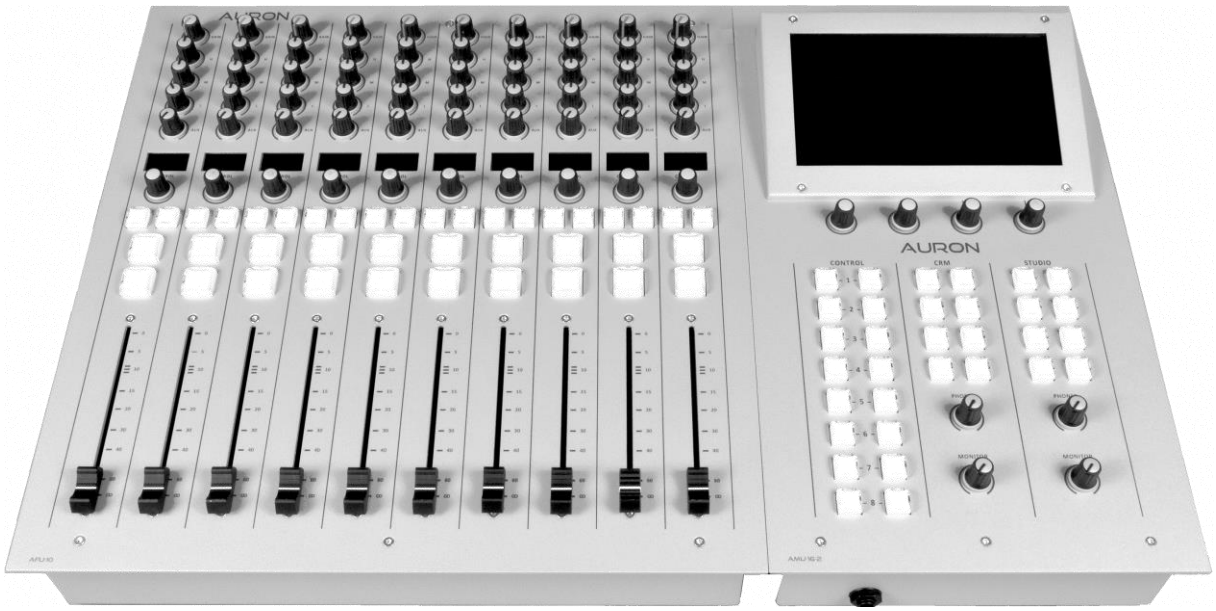
4 System Architecture

4.1 Overview

The AURON system consists of one MSTR UNIT (master section) and one or more FDR units (10 channel sections). For a minimal system a master and one 10 channel fader unit is needed. If more than 10 modules is desired, additional FDR units can be daisy chained in the system as can be seen below:



In the image below, a minimal system comprising 10 faders and a master section is depicted.
These two components are housed separately in their metal enclosures. They share the same height, allowing them to be aligned seamlessly, giving the appearance of a single frame. The connection between them is facilitated by a single 44-pin cable, permitting flexibility in their arrangement.
The MSTR UNIT can be positioned either to the left or right of the FDR units, and even a split setup with space between the two units is possible.



Front view

Back view

4.2 Hardware Architecture

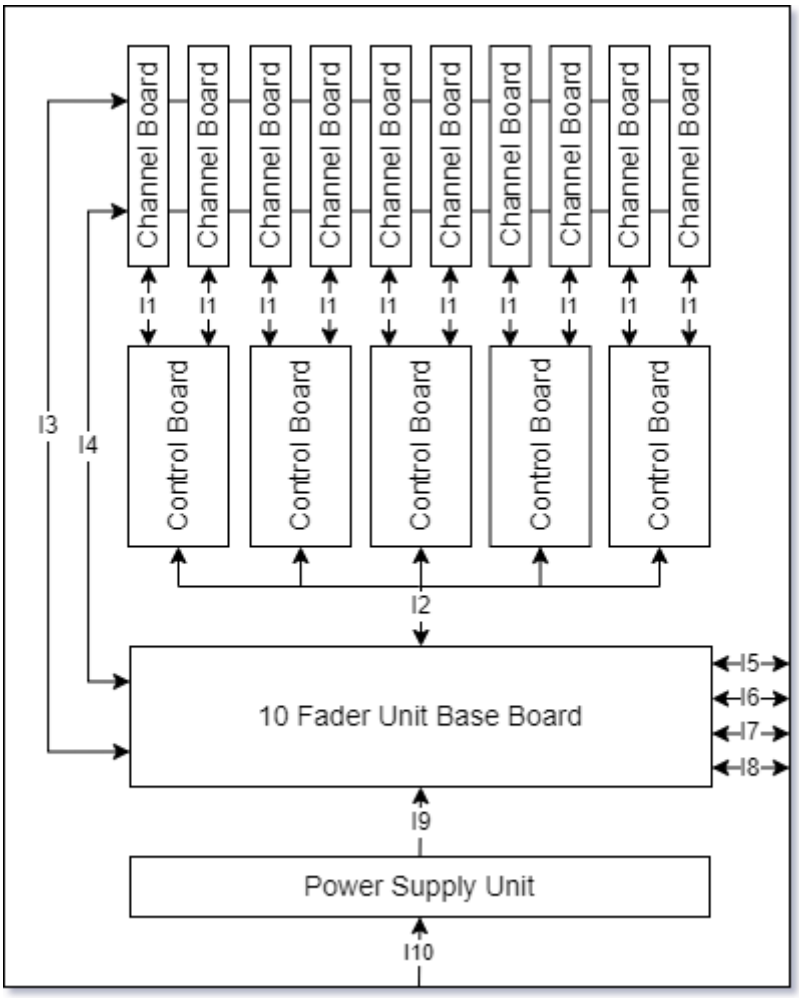
In this chapter all the hardware, which consist of several PCBs will be discussed. Every PCB has its own functionality and responsibility for performing specific tasks. Firstly all the required PCBs needed for the FDR units will be discussed. After that, the master will follow.

4.2.1 FDR units

The Auron Fader Unit (FDR units) consists of the following PCB's:

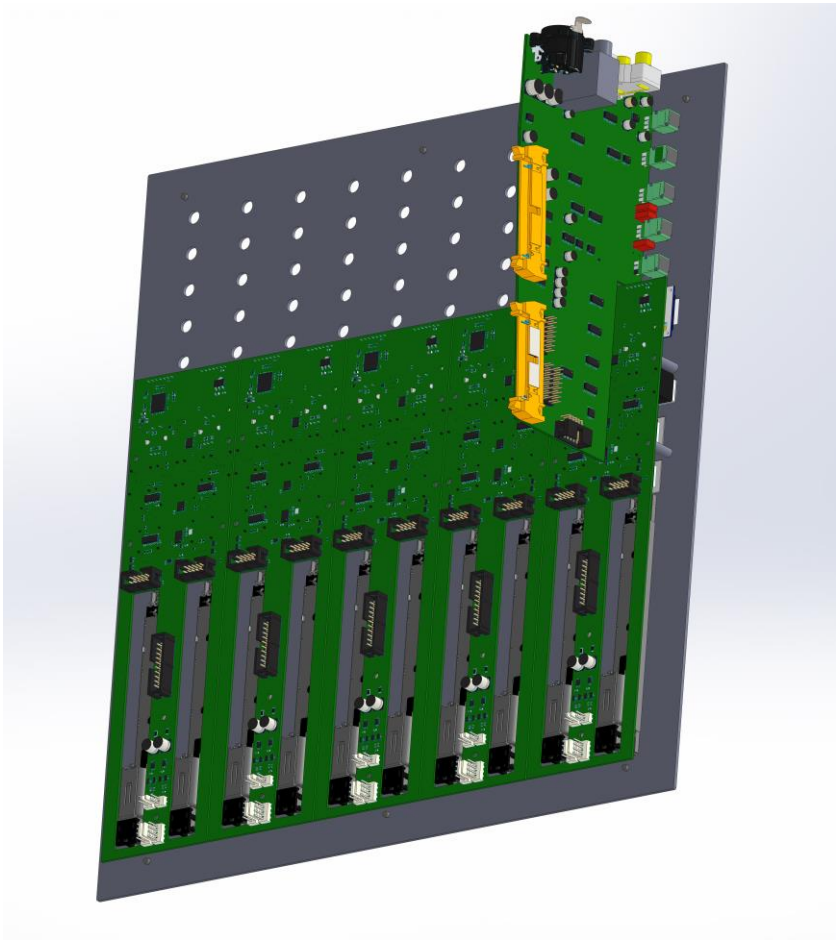
- Auron-1 Channel Board Mic/Line
- Auron-2 Channel Board VoIP/USB
- Auron-4 Control Board
- Auron-5 10 Fader Unit Base Board
- Auron-6 Power Supply

The FDR units-10 accommodate up to 10 channel boards, allowing for a maximum of 10 positions. With a uniform backplane design, any combination of Mic and VoIP channel boards is possible.
For example, a configuration with 8 Mic boards and 2 VoIP boards is entirely feasible. It is the end user's prerogative to determine the specific configuration before the mixing console is assembled.
To control 10 channel boards, five Auron-4 control boards are required. Additionally, an Auron-5 base board and an Auron-6 power supply are necessary to provide power to all the internal PCBs.
These PCBs are interconnected using one or more interfaces, which will be explained in greater detail later in this manual.



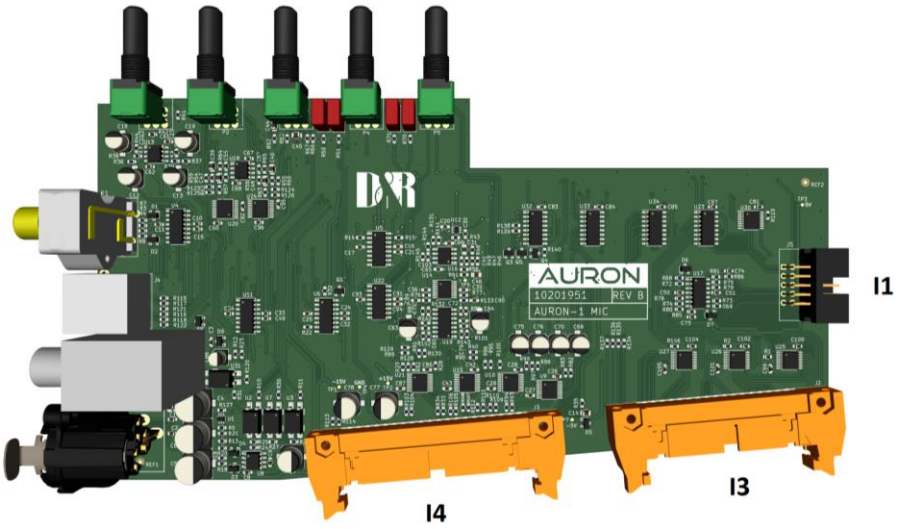
The images on the next page illustrate the positioning of various PCBs within the metal enclosure.
The base board is situated at the bottom, the control boards are mounted horizontally on the front panel, and the channel boards are attached to the back panel.
Flat cables connect the channel boards to the control boards.


AURON
SYSTEM INTERFACE
OUT
IN
POWER



4.2.1.1 AURON-1 Channel Board Mic/Line

The AURON-1 is an analog input channel board mainly used for connecting a microphone. On the PCB there are several digitally controlled analog switches (DCAS) which controls the analog audio path.



Potentiometer controls:
The potentiometers on the PCB have the following functions from top to bottom: GAIN, EQ-high, EQ-mid, EQ-low, AUX-send.

Connectors:

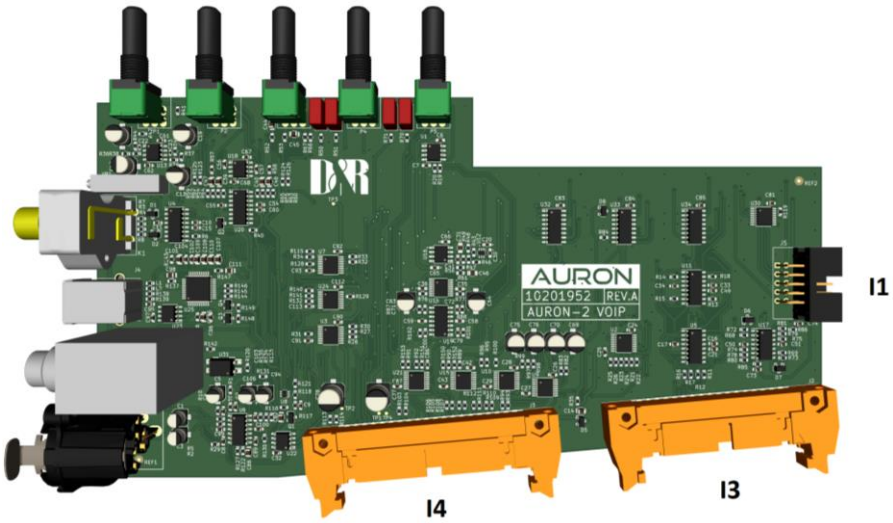
- Stereo line input on cinch connector
- Studio Remote on RJ45 connector (compatible with D&R AXUM/AXITE system)
- Insert Jack (only processing mic input signal)
- GPO (optoFET) on jack connector
- Balanced microphone/Line mono input on XLR (0, +20, +40, +60db pre-amp gain)

Input Sources:

- Mic
- Line (stereo)
- Slot1[1..2]
- Slot2[1..8]

4.2.1.2 AURON-2 Channel Board VoIP/USB

The AURON-2 is an analog input channel board mainly used for telephone conversations and USB signals. On the PCB there are several Digitally Controlled Analog Switches (DCAS) which control the analog audio path.



Potentiometer controls:
The potentiometers on the PCB have the following functions from top to bottom:
GAIN, EQ-high, EQ-mid, EQ-low, AUX-send.

Connectors:

- Stereo line input on cinch connector
- USB Stereo In- and Output
- Cleanfeed (CF) output on jack connector
- GPO (optoFET) on jack connector
- Balanced mono line input on XLR

Input Sources:

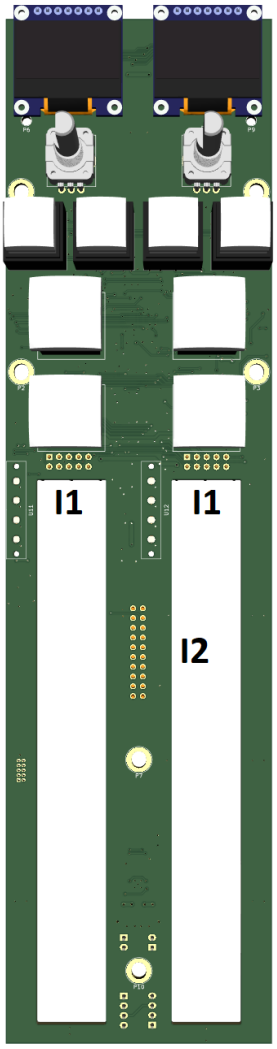
- Line
- USB
- Slot1[1..2]
- Slot2[1..8]

4.2.1.3 AURON-3 Channel Board Balanced Line (Optional and not yet available right now)

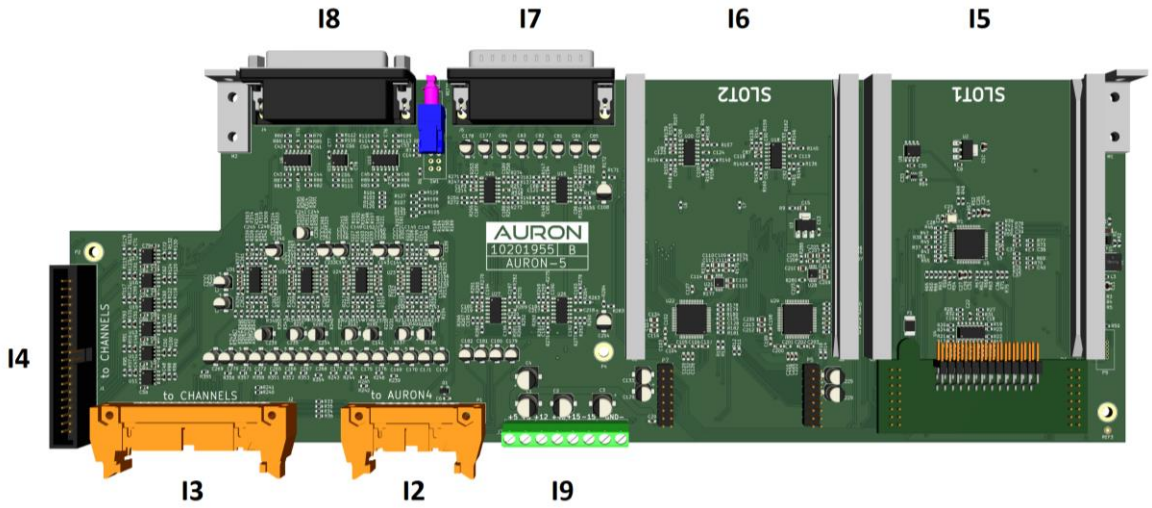
This type of board is not yet available but can be an option for the future if there is demand for..
The connector layout will be the same as the AURON-1 Channel Board Mic. The RJ45 will be a stereo-balanced input (compatible with AXUM patch panels). The XLR is a balanced mono input, GPO is off course available, and finally the CF/INS Jack has a to-be-determined function. CF is not present on this board, and INS is only for microphone processing, so there is no need for both of these functions. Maybe we can think of a third function or leave it without a function at all (don't place jack on PCB, and fill hole in backplate with plastic cover?).

Another option to provide the AURON with a stereo balanced input is to develop an expansion card which can be placed in slot 1 at the back of the FDR units. It can contain 2x RJ45 connectors which equals 2x stereo inputs which can be used on all 10 channels in the FDR units.

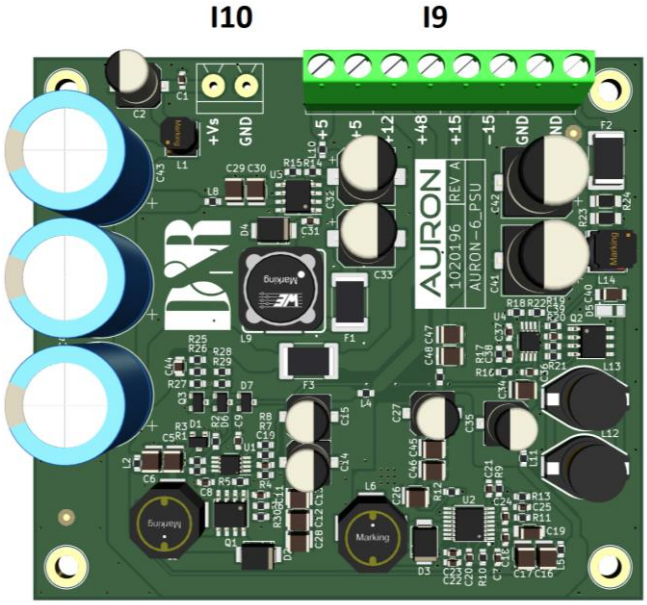
4.2.1.4 AURON-4 Control Board



4.2.1.5 AURON-5 10-Fader Unit Base Board



4.2.1.6 AURON-6 Power Supply

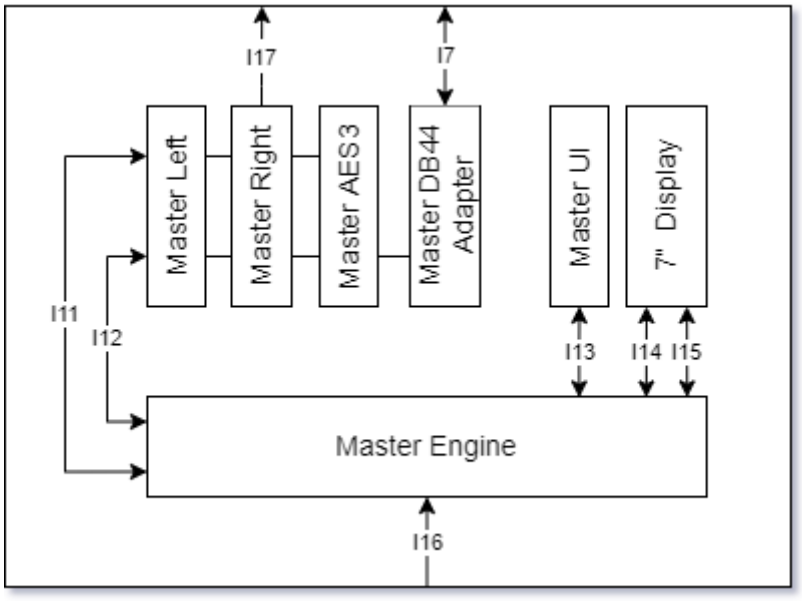


4.2.2 MSTR UNIT (Auron Master Unit)

The Auron Master Unit consists of the following PCB's:

- Auron-12 Master Left
- Auron-13 Master Right
- Auron-14 Master AES3
- Auron-15 Master UI
- Auron-16 Master Engine

The MASTER UNIT has a fixed configuration of the above-mentioned PCBs. The MSTR UNIT doesn't have a separate PSU since it is implemented on the Master Engine PCB. In the picture below an overview is given of the PCBs and their interconnections with various interfaces. Furthermore, there is a 7 Inch touch display connected to the Master Engine with interface I14 and I15 to control the entire system.

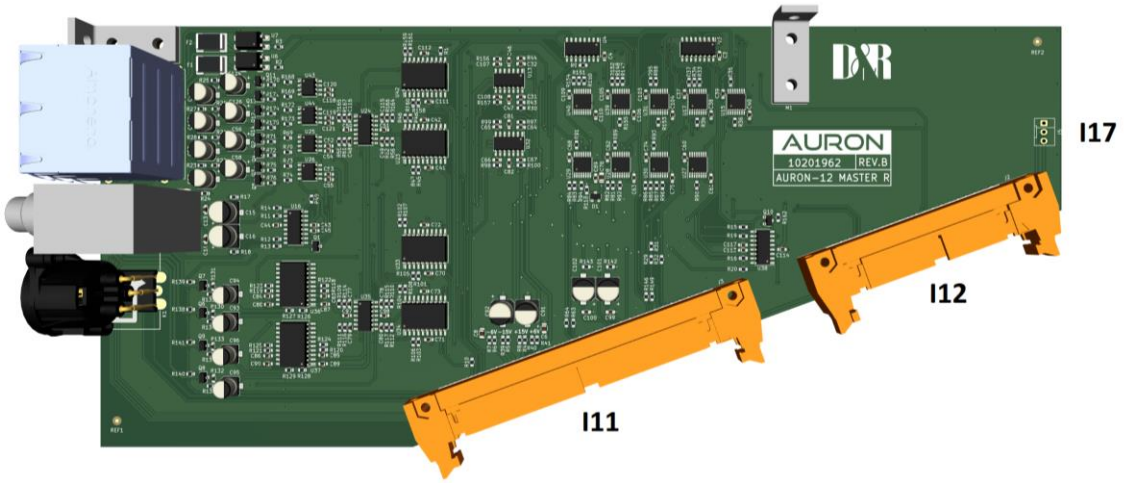


4.2.2.1 AURON-12 Master Right

- Level controlled outputs:
  - CRM Speaker (balanced on RJ45)
  - STUDIO Speaker (balanced on RJ45)
  - CRM+STUDIO Phones (2x RJ45)

- CRM bus insert jacks for L and R

- MASTER Right output on XLR (can be PGM or NonStop source)

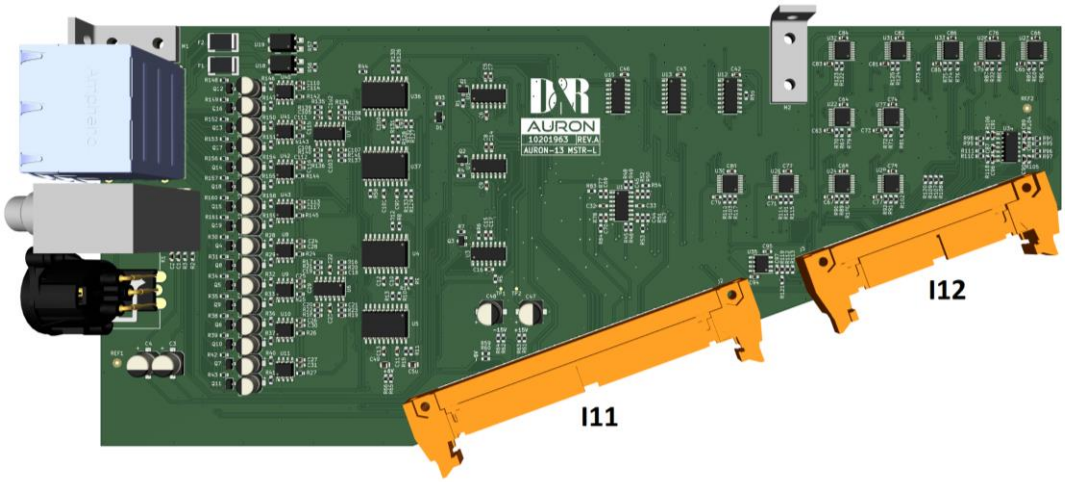


4.2.2.2 AURON-13 Master Left

- Level controlled outputs:
  - CUE bus (balanced on RJ45)
  - SUB bus (balanced on RJ45)
  - AUX bus (balanced on RJ45)
  - MASTER (balanced on RJ45)

- MASTER buss insert jacks for L and R

- MASTER Left output on XLR (can be PGM or NonStop source)

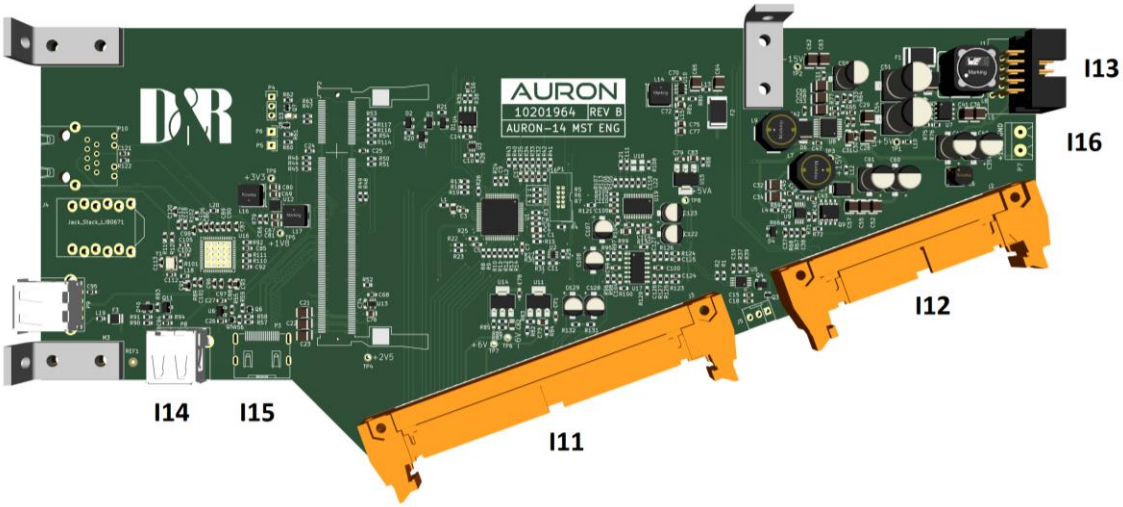


4.2.2.3 AURON-14 Master Engine

- CRM Phones on Jack
- STUDIO Phones on Jack
- USB connector for future use (maybe NFC card reader for users to log in)
- Ethernet connector for control (NOT Audio)

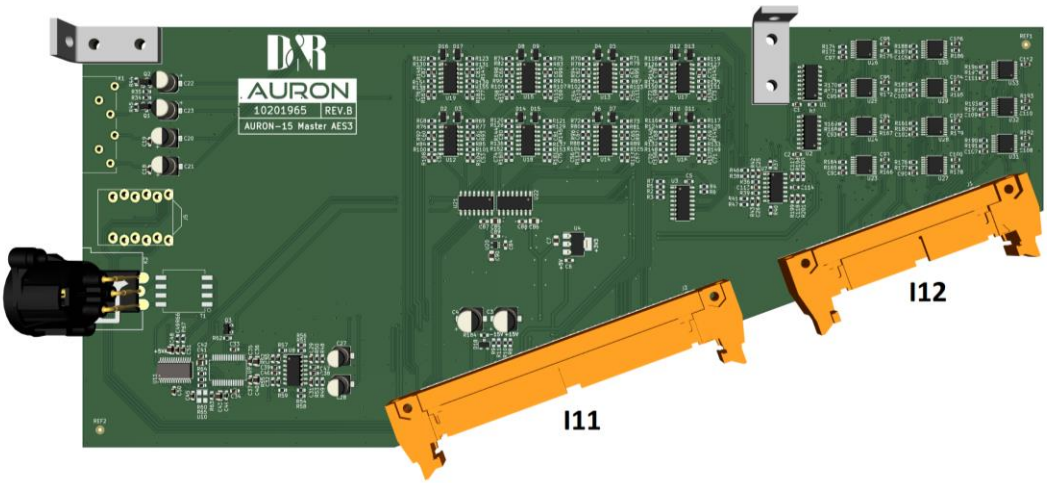
On the board the Compute Module V3 is the heart of the system. It is running the D&R OS with all the other software processes described later on in this document.

Processing
The board contains a stereo CODEC (ADC and DAC) directly connected to the compute module via I2S which eventually can be used for master bus processing (Stereo Tools).



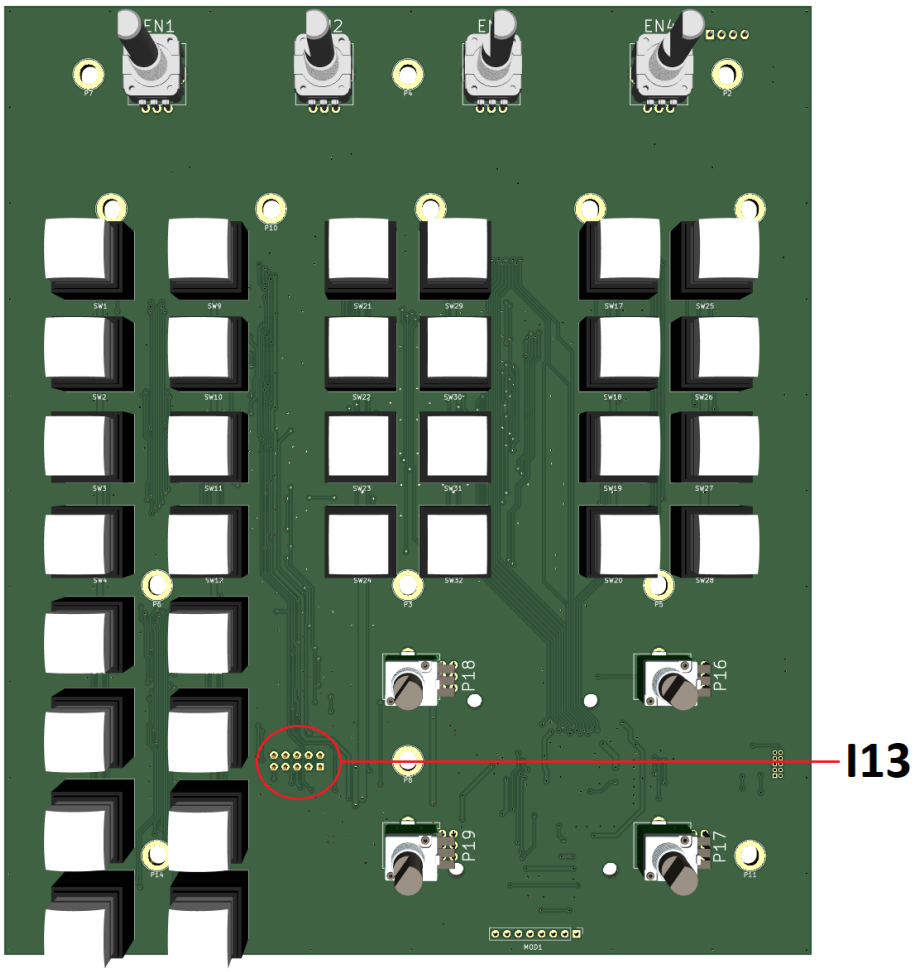
4.2.2.4 AURON-15 Master AES3

- MASTER digital AES3 output (can be PGM or NonStop source)
- STUDIO bus insert jacks for L and R
- EXT input on cinch
- CRM bus output on cinch



4.2.2.5 AURON-16 Master UI

- 4 encoders to control software applications on 7” touchscreen
- 16 General Purpose control buttons (used for playout control)
- 2 Monitor sections, each having:
    - 8 Source input buttons
        - PGM, SUB, AUX, VT, EXT, PFL, MST, NS
    - Phones Level potentiometer
    - Speaker Level potentiometer



The encoders are used for hardware control and the application on a 7 inch display. This could be helpful when the touch is not working, of the user prefers encoder control above touch control.

4.3 Software Architecture

4.3.1 DNR Operating System (Linux)

DNR OS is a custom-built operating system based on build root targeting D&R products which need such an embedded Linux environment.

4.3.1.1 Requirements

- Remote updating
- Splash LOGO at start-up
- Small footprint
- Fast boot time
- Easy configurable (packages menu build root)
- Hardware Target: Compute Module v3, maybe CM4 in the future (for optional Stereo Tools processing)
- Automatic ordered start of Auron processes (gateway, logger, address, engine)

4.3.2 Embedded Software (Firmware)

The entire system contains of four different node types, auron-4, 5, 14, 16, each with a Microchip SAM E51 microcontroller on board. These controllers are interconnected by the CAN-FD bus. Each node has its own application code and they share a common bootloader which is used for updating firmware via CAN bus. The final firmware for each node is created by merging bootloader code with the application code which results in one binary file. This tool can be found at the following location:

\\09-Software\04-Tools\Auron\Firmware Merge Bootloader and Application

The batch file ***create_and_copy_auron_bins.bat*** creates the four binaries for the nodes mentioned above. Always run this script if new firmware versions are built.

The firmware is built using Microchip MPLAB X IDE v5.45 (windows). If adjustments are done in the firmware of any project given below, the version number needs to be updated and can be found in the file *AuronConfig.h*.

4.3.2.1 Auron-Bootloader

The Auron bootloader is used in all the nodes to update the firmware remotely. The bootloader has a serial and a CAN interface. For the Auron-16 (master) the microcontroller gets its new firmware over the serial interface since this is the gateway interface between the serial interface and CAN bus.
All the other nodes will be updated over the CAN bus. Therefore, the order of updating is important, the Auron-16 MUST be in running application mode to update the other nodes which are connected on the CAN bus. If the Auron-16 is not running, the communication between all other nodes and the engine (compute module 3) is broken. The boot sequence can be found in Appendix A in this document.

4.3.2.2 Auron Common Library

The processes address, engine, gateway and logger are all using common functions which are included in a shared library named Auron-common (libauron-common.so). The most important functionality of the library are:

COBS	- Encode/Decode stream of data
Log	- Logger driver (to file or console (-b = verbose)
Postgresql	- Postgresql database driver wrapper
Serial	- Serial driver interface
Unix client	- Unix socket client driver interface
Unix server	- Unix socket server driver interface
Utils	- Utility functions

4.3.2.3 Auron-address

The Auron address process is responsible for providing a valid node ID. This node ID is stored in the internal EEPROM (non-volatile memory). To obtain a unique node ID , the node sends an identification message every second, this happens from the bootloader.

When then Auron-address receives this identification message (with 128bit hardware serial as data) it will look up the device by this 128bit serial in the DNR database (//Einstein) and respond back the founded node ID, or register the new device if not exists and returns the node ID to the node.

The node will store the node ID in its internal EEPROM and is now ready to go to the next stage which is entering the application area. The bootloader will jump to the application area if the node ID has a valid value read out from the EEPROM. So, the node ID is required to enter the application, otherwise, it will stay in bootloader mode and keep sending its identification message every second.

4.3.2.4 Auron-engine

The Auron engine process is the most important part of the entire system. All CAN messages are received in this process and need to be processed for further actions. In the engine process, all the state data of the entire system is stored, like a module ON, PFL, Phantom, etc. This should be the ONLY place to store data (single source of truth) to prevent out of sync data issues. An Ember+ provider needs to be created as an interface for the ‘outside world’.

Ember+ consumers can connect to the engine and ‘listen’ to events or modify data like set module 1 PFL on. The 7-inch display UI applications implement such a consumer to display all the current data to the screen.

A PostgreSQL database is used for storing the settings/configuration data. PostgreSQL is chosen as a database since it is the only one with a notification system in the C connector. This means a C application can receive notifications when a database table is changed. This is in mySQL not possible and the only way to do it there is with a polling method.

4.3.2.5 Auron-firmware-update

Auron-fwupdate is the process for doing firmware updates if they are available. The process is a smart application which can update all the nodes in the system automatically. It will first search for available firmware files (.bin files) in the specified firmware folder, or the default one if none is specified. Second step is to do a device discovery to get an overview of the connected devices (nodes) in the system.

The last step is to iterate over each node and compare the current firmware in the device with the firmware version available as file on the system. If there is a newer firmware file available the node will be updated to this version. The status of the process will be printed to the screen of logged in the specified log file.

This process should be called from the menu in the 7’ inch display somewhere. A good place for such a function could be in the System main menu for example.

4.3.2.6 Auron-gateway

The gateway is the first process which needs to be started before all other mentioned processes.
It provides a communication gateway between the serial port and Unix sockets. The serial port is connected to the SAM microcontroller and receives all messages from nodes over the CAN bus.
All the data is forwarded to the connected unix socket (clients). Every process creates a Unix socket client and connects with this Unix socket (server).

4.3.2.7 Auron-logger

The logger application is more for development usage. It could help debug the system.

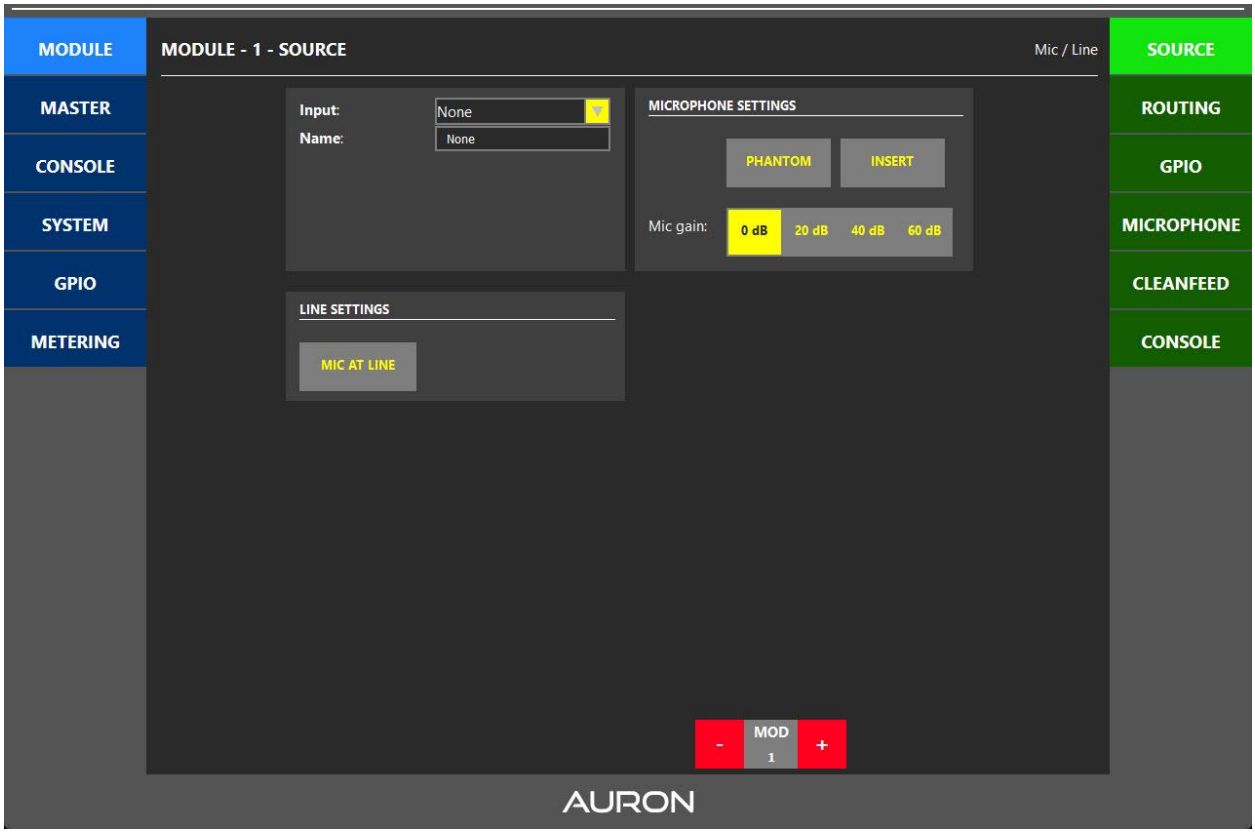
4.3.3 7'' Display Web-based User Interface DESIGN

On the MSTR UNIT there is a 7-inch touch display which is the place to display information about modules and / or master settings, but also to change settings. The menu structure is built in main menu items at the left side (blue buttons) and sub-menu items at the right (green buttons). Every main menu button has 8 sub menu items.

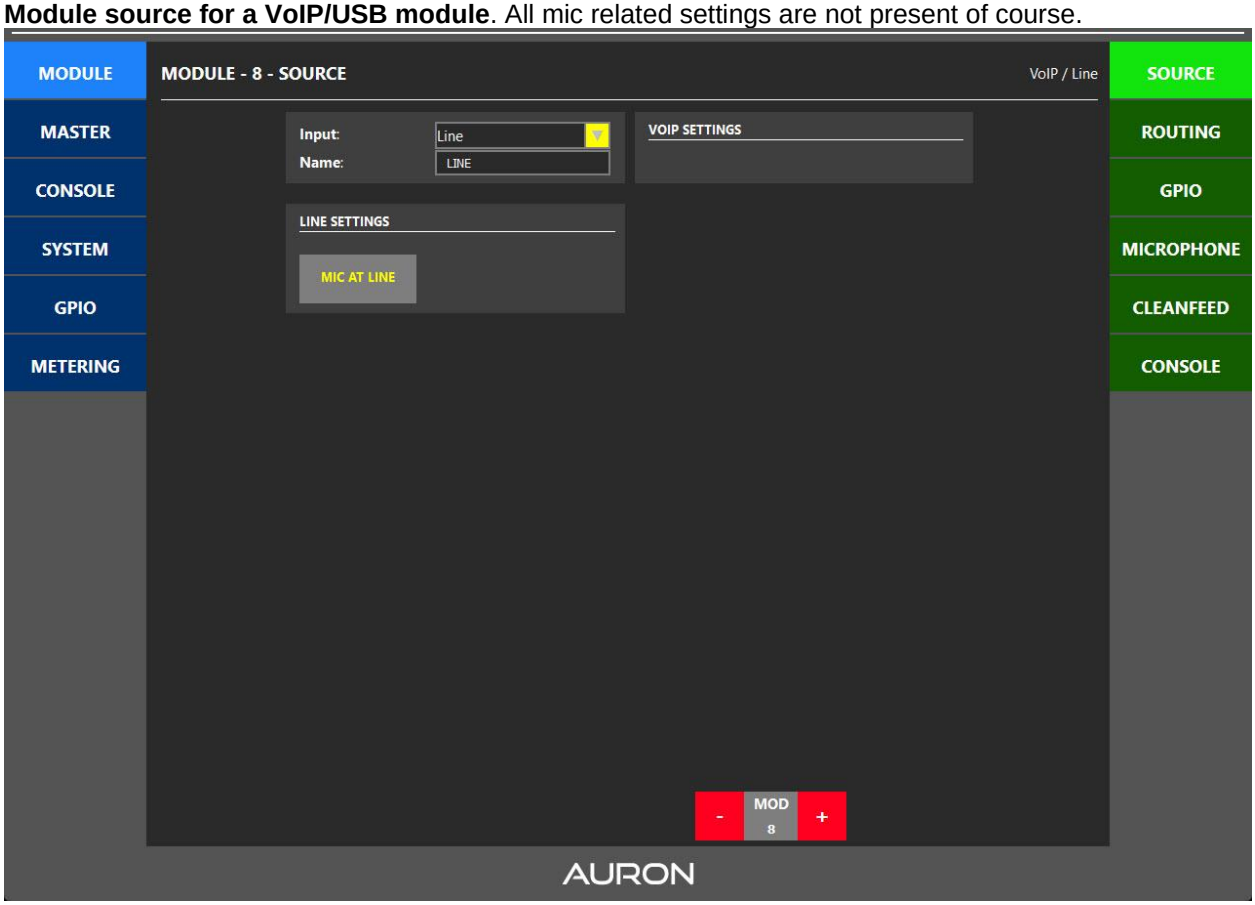
4.3.3.1 Module Source

Module source for a MIC module. Input combobox can be used to select the source. In total, there are 13 sources to choose from. The Mic settings panel is shown with mic preamp gain settings (this is NOT the gain potentiometer above the channels!). Insert and phantom can be enabled/disabled by pressing the buttons. Yellow colour indicates active and grey is inactive (intuitive look and feel).

MODULE-SOURCE



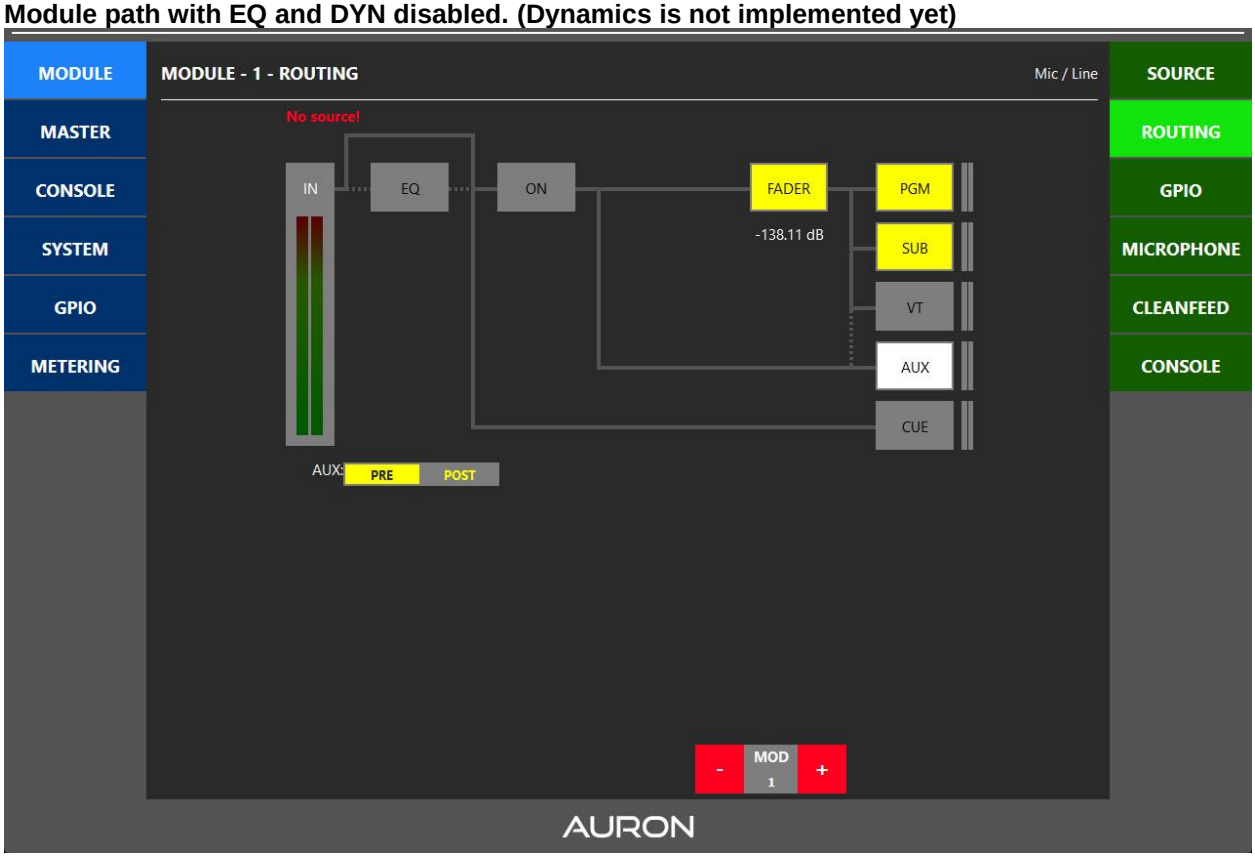
Module source for a VoIP/USB module. All mic related settings are not present of course.



4.3.3.2 Module Path

The signal path is shown here and every block can be enabled or disabled like EQ, ON, DYNamics, Fader and at last the mix busses routing for PGM, SUB, VT, PFL. Aux cannot be set, it is fixed routed via the aux potentiometer.

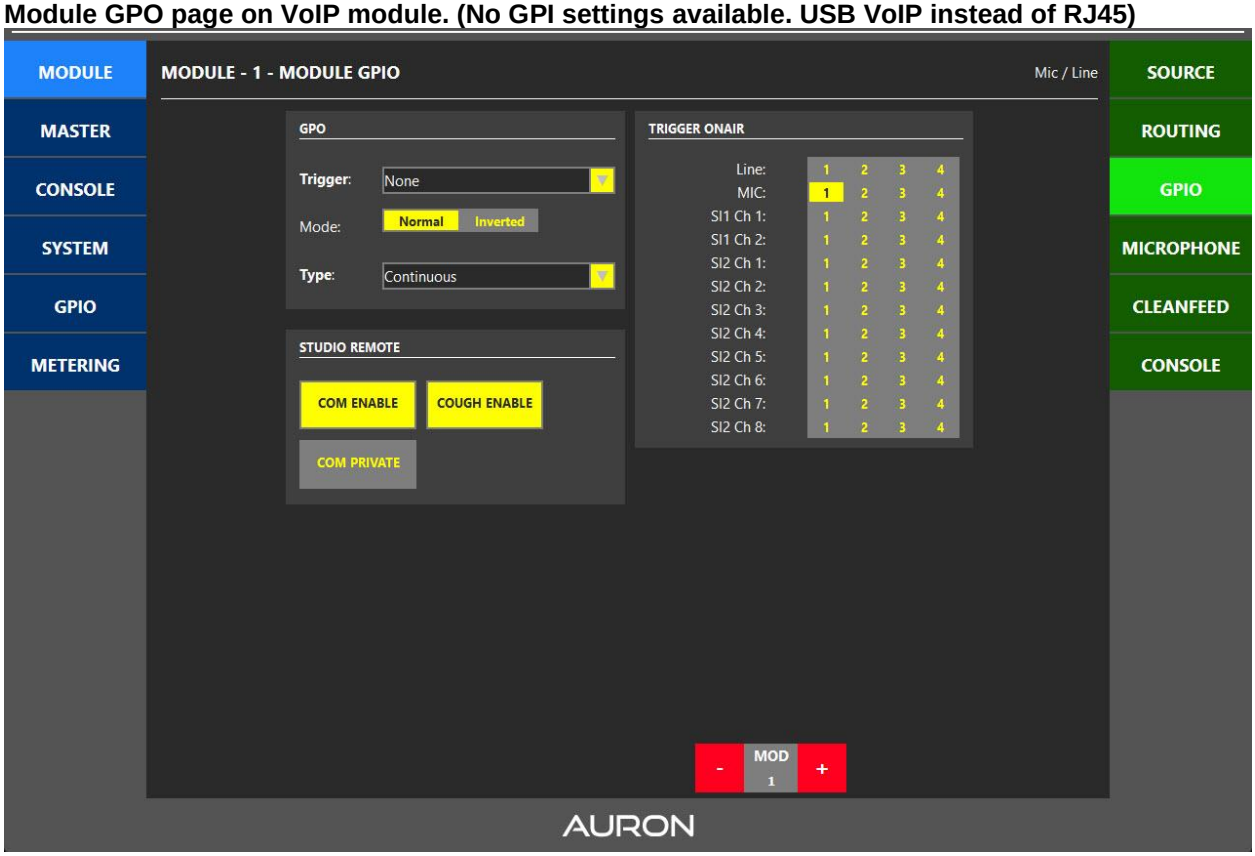
Module path with EQ and DYN disabled. (Dynamics is not implemented yet)



4.3.3.3 Module GPIO

Module GPIO settings for mic module. (has two additional GPIs via studio remote RJ45 connector). The GPO trigger can be configured to a Auron Function described in chapter 6.2. This can be a function of the Boolean data type. An example could be: Module 9: Phantom on/off. The GPO will now be triggered when phantom power is applied to module 9. GPO can be pulse or continuous.

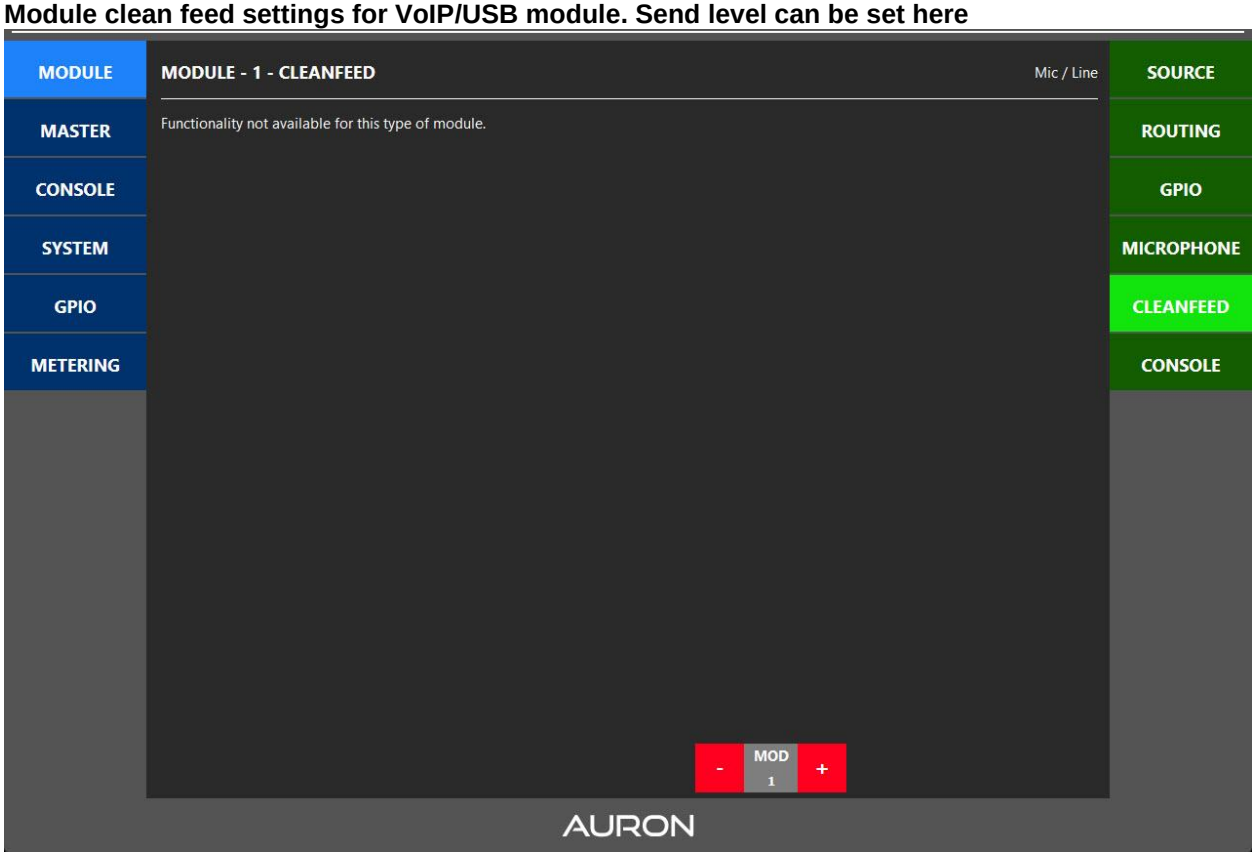
Module GPO page on VoIP module. (No GPI settings available. USB VoIP instead of RJ45)



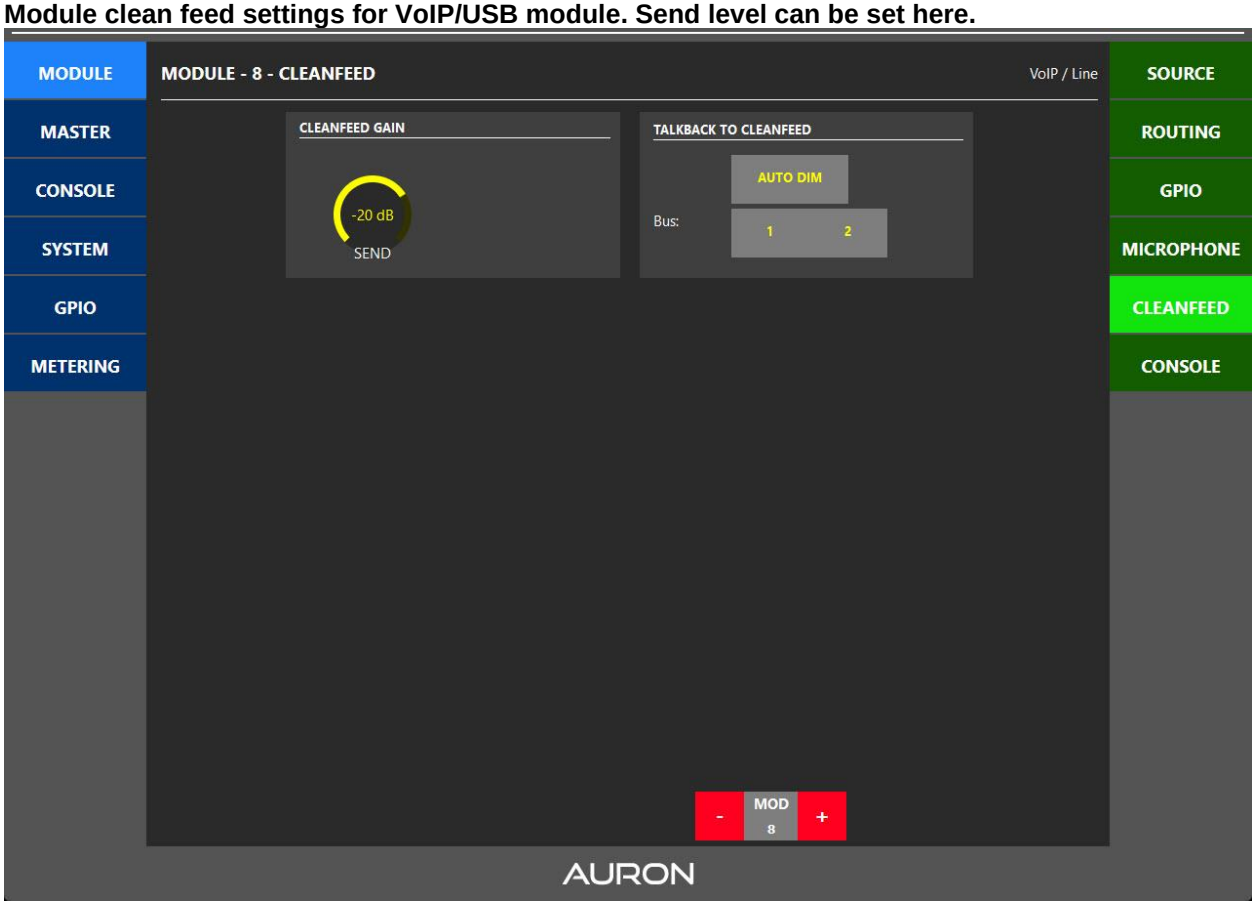
4.3.3.4 Module Clean feed

Module clean feed settings for mic module are not available. Only VoIP/USB modules have clean feed.

Module clean feed settings for VoIP/USB module. Send level can be set here



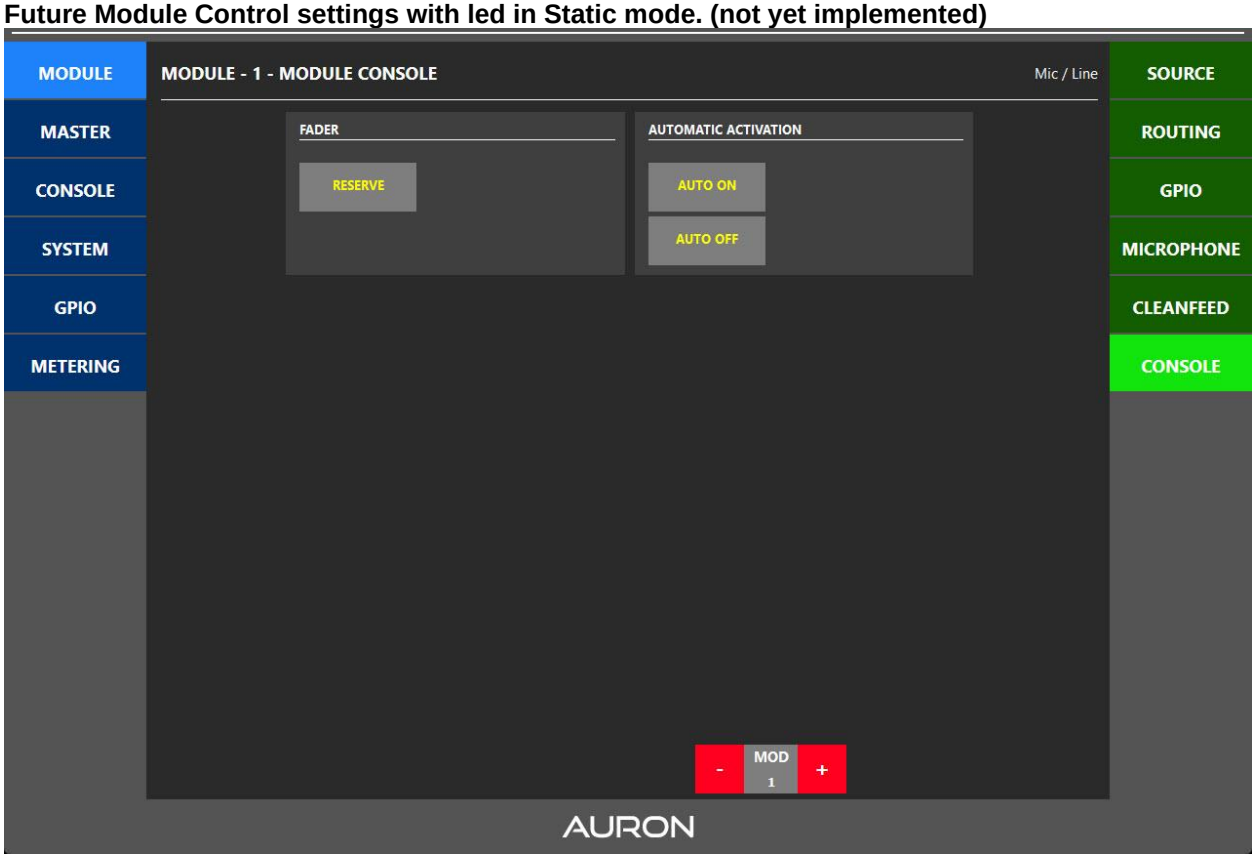
Module clean feed settings for VoIP/USB module. Send level can be set here.



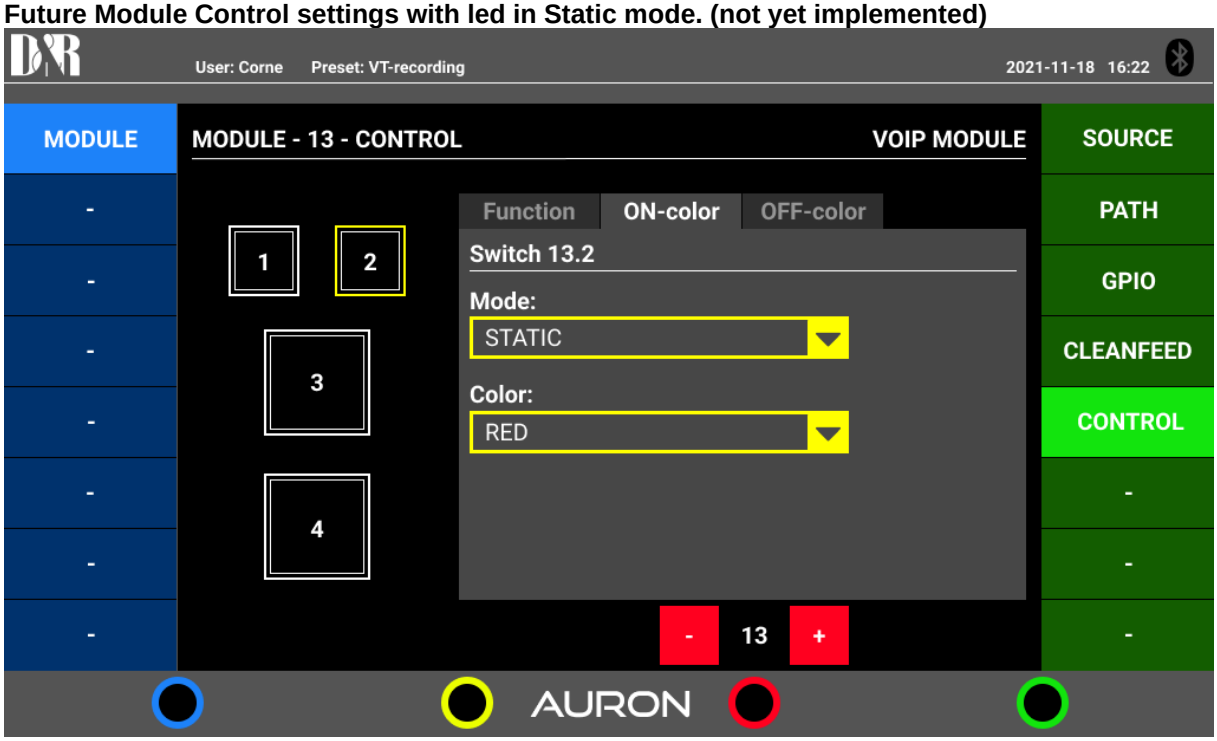
4.3.3.5 Module Console

Module Console settings panel is used for assigning Auron Functions (chapter 6.2) to the UI buttons on FDR units. A button can have a function to control and an ON and OFF colour for the two states the function can have. For each function state the colour mode can be set to static or blinking. Colours ranging from OFF, LED, GREEN, YELLOW.

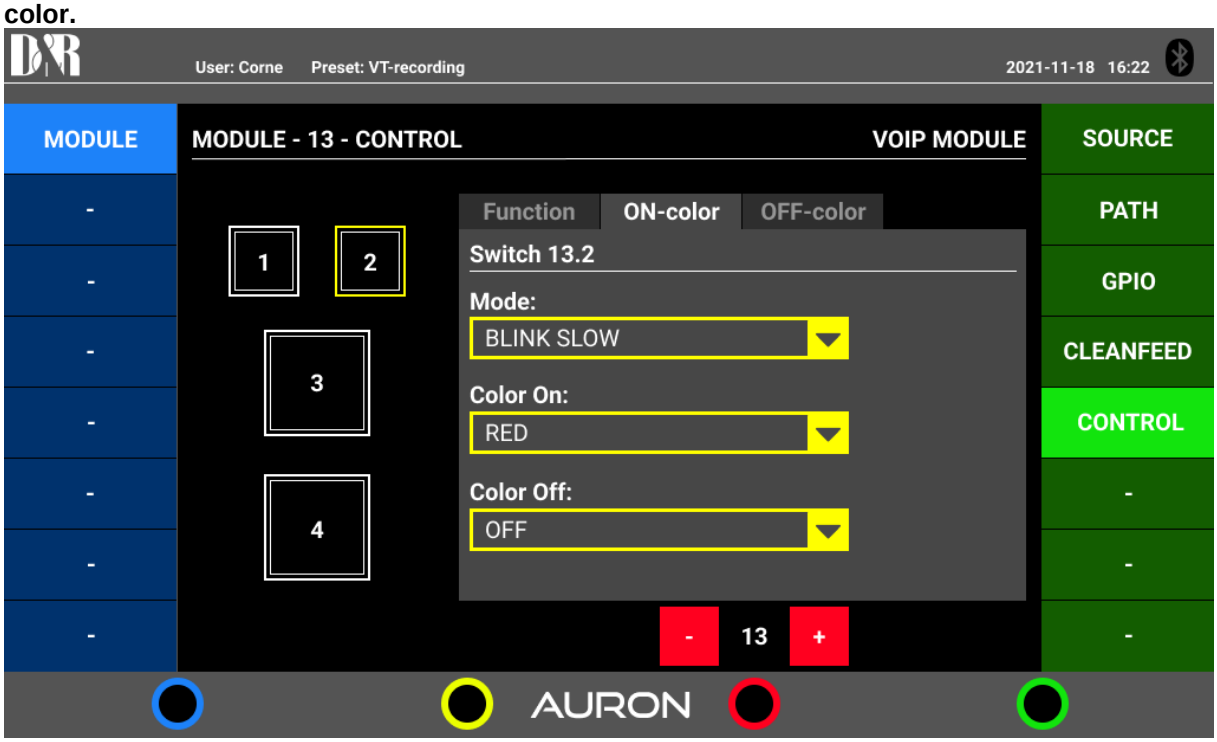
Future Module Control settings with led in Static mode. (not yet implemented)



Future Module Control settings with led in Static mode. (not yet implemented)



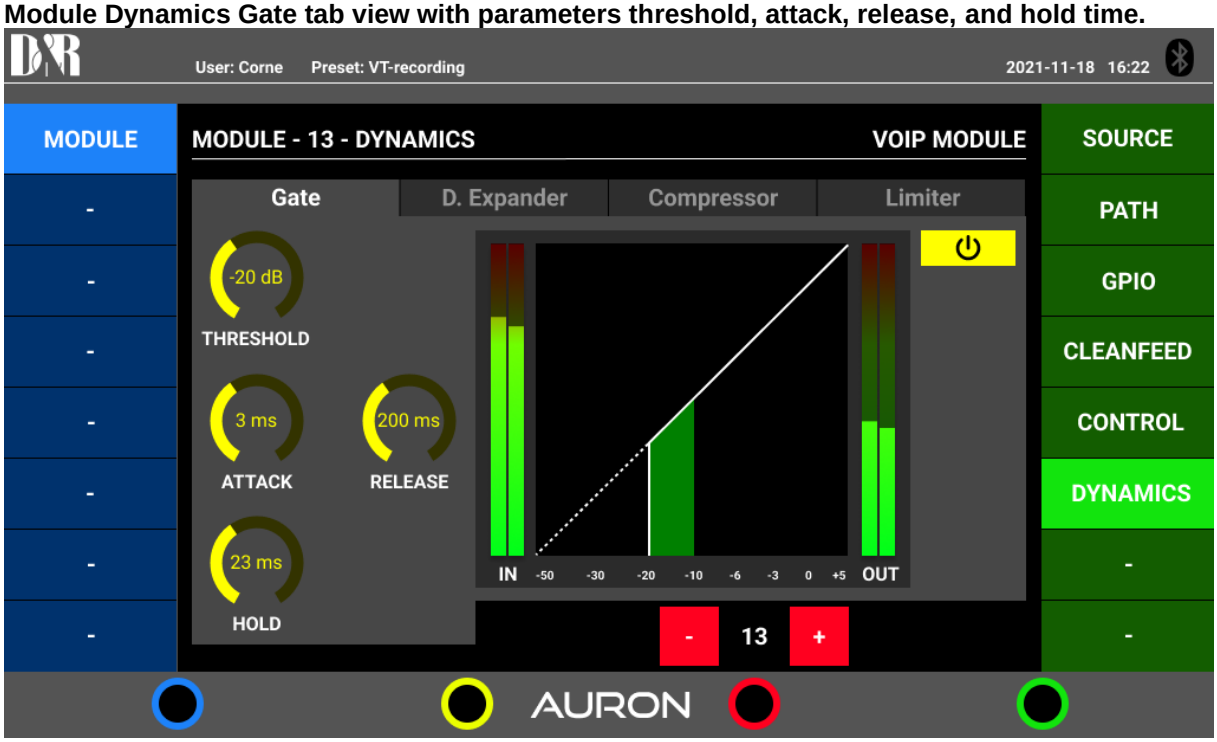
Future Module Control settings with ON-state configured in slow blinking between red and off color.



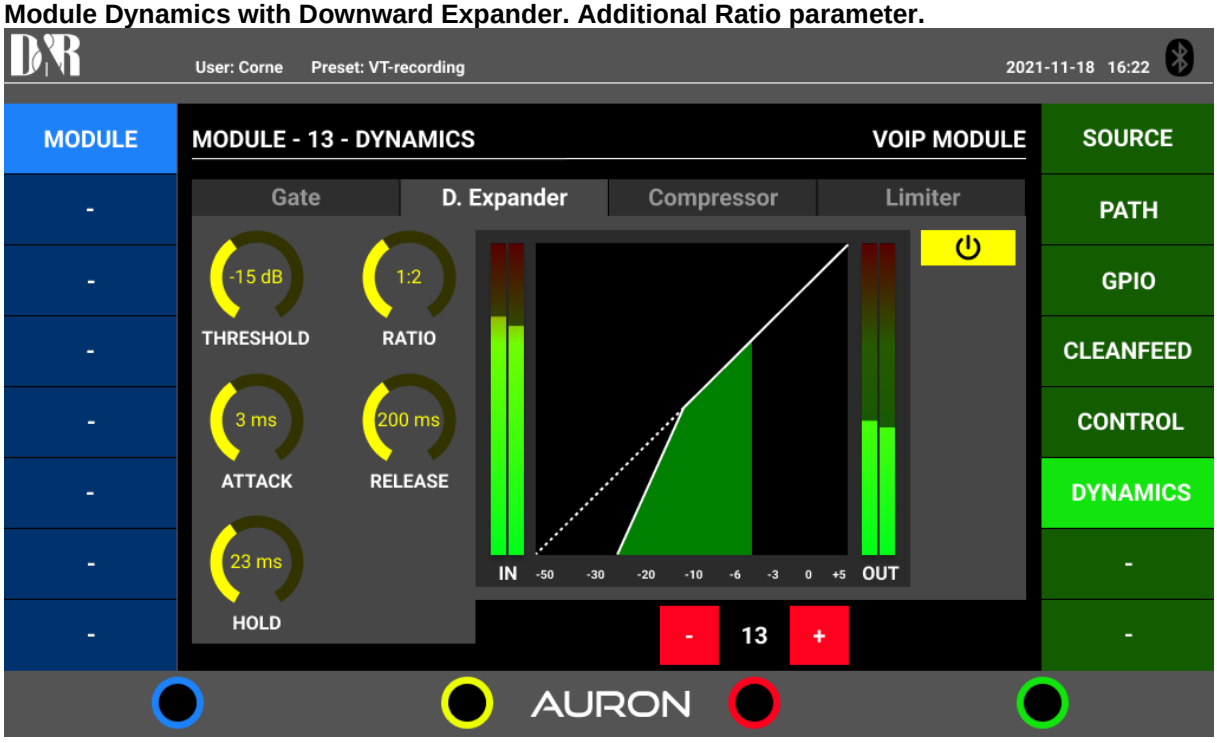
4.3.3.6 **Module Dynamics** (Optional at the moment and not available yet)

On the channel boards there is a VCA located which can be used to do dynamics processing like gate, compressor, downward expander, and limiter. This functionality needs to be implemented in the Auron 4 control board module which controls the VCA in the channel board over interface I1 (analog voltage over 10 pin connector).

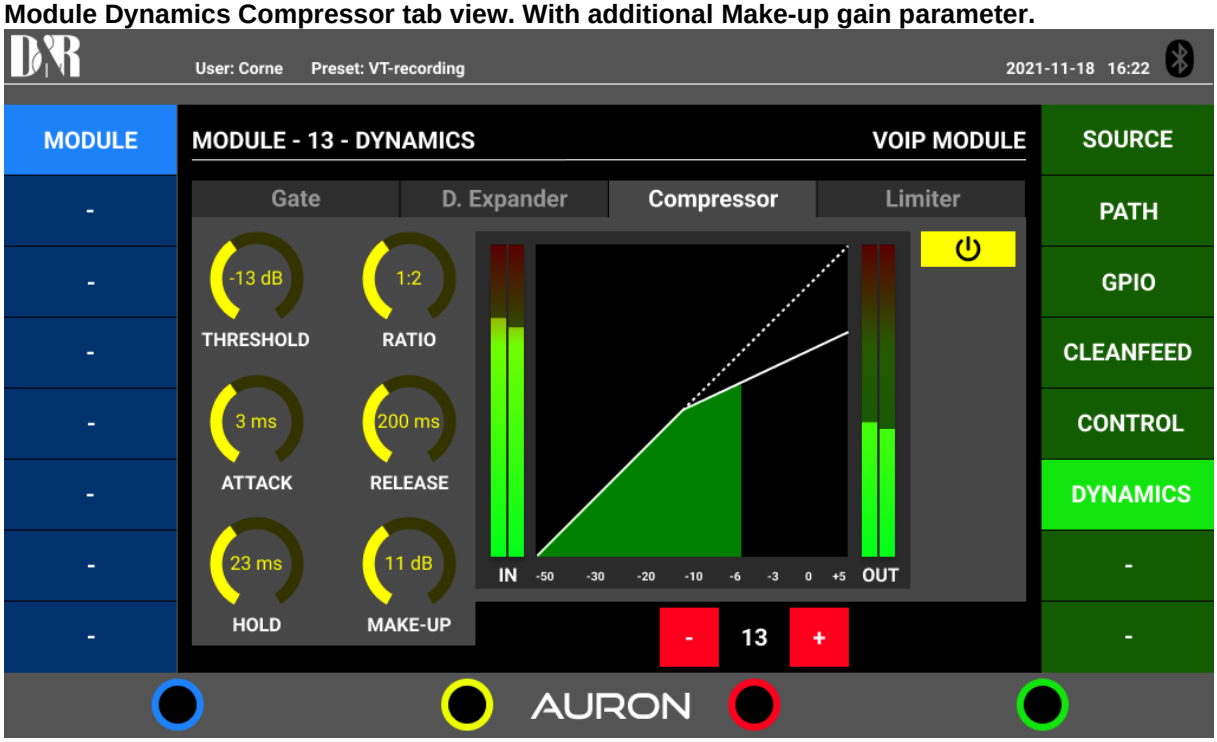
Module Dynamics Gate tab view with parameters threshold, attack, release, and hold time.



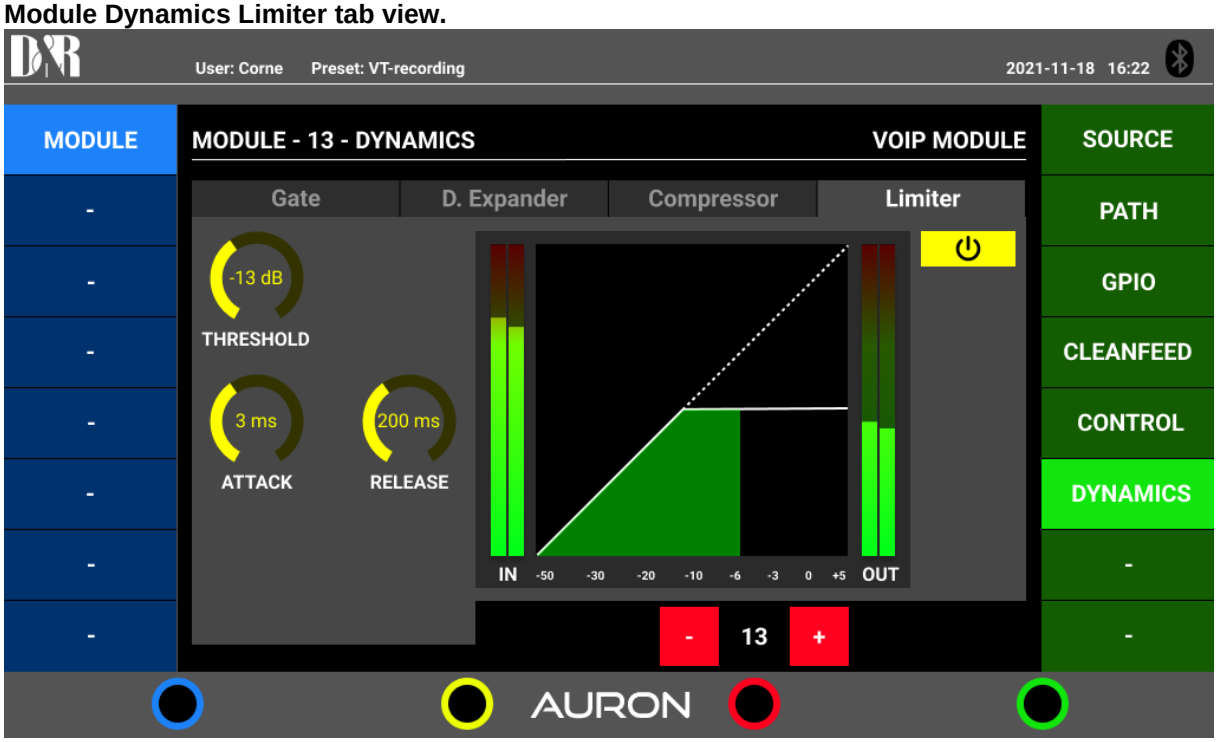
Module Dynamics with Downward Expander. Additional Ratio parameter.



Module Dynamics Compressor tab view. With additional Make-up gain parameter.



Module Dynamics Limiter tab view.

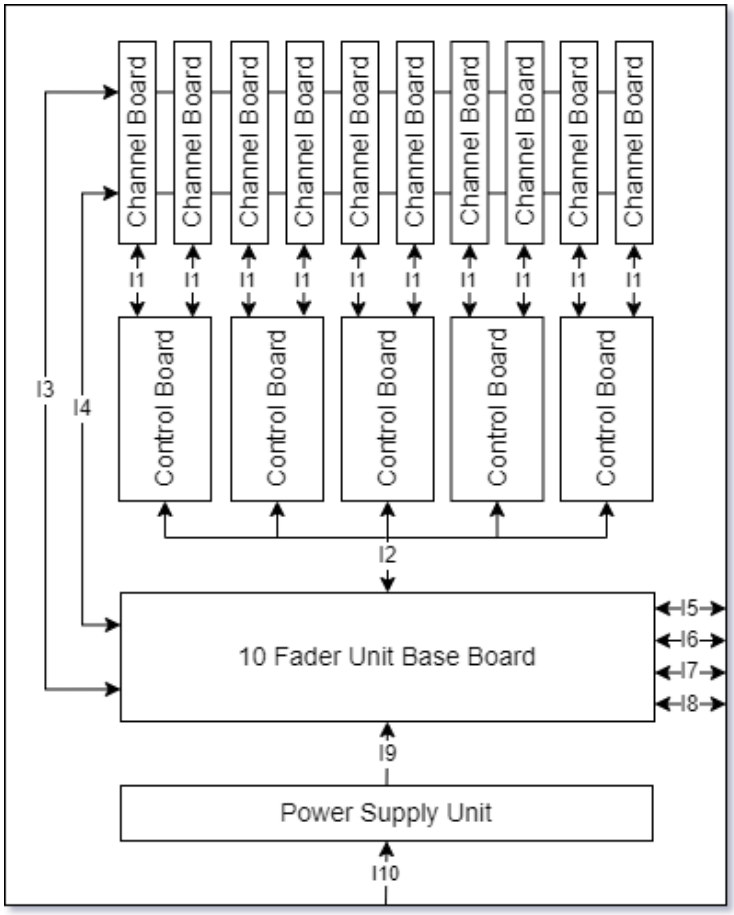


4.3.4 Desktop web-based User Interface DESIGN

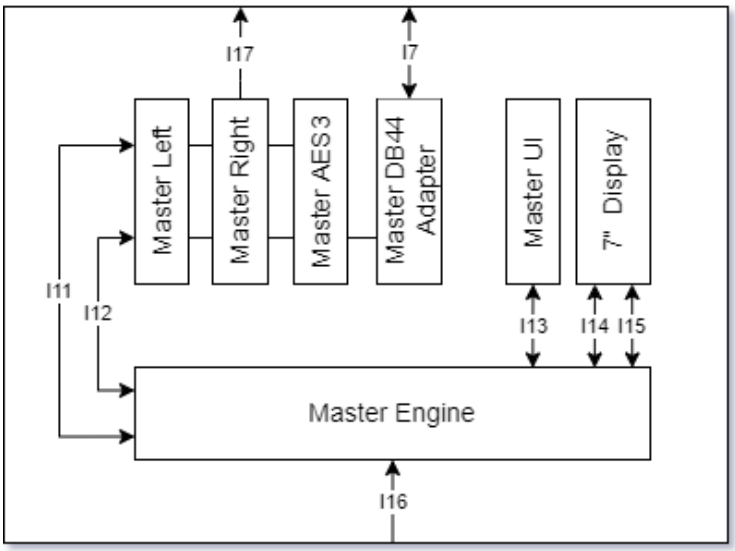
Layout and Design is the same as on the 7” Display discussed in the last chapter. It should have the same look and feel but with more in-depth settings. With settings such as creating users, setting user rights etc. Desktop applications are more for advanced settings. The internal 7-inch display is for normal operation control of the mixing console.

4.4 Interface Architecture

4.4.1 FDR units



4.4.2 MSTR UNIT



4.5 Interface Detailed Design

Physical Connection: 34P IDE Connector

4.5.1 I4 - FDR units Mixbus/Power Channel Interface

Physical Connection: 40P IDE Connector

Pin	Name	Direction	Desription
1	+48V	output	+48V Phantom power
2	GND	-	Ground
3	PFL_L	input	Mix bus PFL Left
4	PFL_R	input	Mix bus PFL Right
5	GND	-	Ground
6	PROG_L	input	Mix bus PROG Left
7	PROG_R	input	Mix bus PROG Right
8	GND	-	Ground
9	SUB_L	input	Mix bus SUB Left
10	SUB_R	input	Mix bus SUB Right
11	GND	-	Ground
12	VT_L	input	Mix bus Voice Track Left
13	VT_R	input	Mix bus Voice Track Right
14	GND	-	Ground
15	AUX_L	input	Mix bus AUX Left
16	AUX_R	input	Mix bus AUX Right
17	GND	-	Ground
18	TB1	input	Mix bus Talkback 1
19	TB2	input	Mix bus Talkback 1
20	GND	-	Ground
21	TB1_RT	output	Mix bus Talkback 1 Return
22	TB2_RT	output	Mix bus Talkback 2 Return
23	SL1_CF1	output	Slot 1 Channel 1 Clean feed
24	GND	-	Ground
25	+15V	output	+15V Supply voltage
26	-15V	output	-15V Supply voltage
27	+15V	output	+15V Supply voltage
28	-15V	output	-15V Supply voltage
29	GND	-	Ground
30	NS_L	output	Mix bus Nonstop Left
31	NS_R	output	Mix bus Nonstop Right
32	GND	-	Ground
33	PGM_M	input	Mono PROG mix bus
34	SL1_CF2	output	Slot 1 Channel 2 Clean feed
35	SUB_M	input	Mono SUB mix bus
36	VT_M	input	Mono Voice Track mix bus
37	GND	-	Ground
38	AUX_M	input	Mono AUX mix bus
39	PFL_M	input	Mono PFL mix bus
40	GND	-	Ground

Physical Connection: 64P IDE Connector

Power:

- +5VA Supply voltage for analogue
- +5V Supply voltage for digital
- +15V
- -15V
- -6V
- +12V

Control:

- Mute Mute pin for all outputs on master
- I/O exp. Signals for input/output shift registers

Audio:

- Outputs: CRM, CRM Headphones, STUDIO Headphones, Master Right (bal.)
- Inputs: EXT
- Monitor bus: CRM, STUDIO, STUDIO Insert Send/Return
- Processing: Stereo Tools Send/Return (codec connected to CM3)

4.5.2 I12 – MSTR UNIT Mixbus Interface

Physical Connection: 40P IDE Connector

Control:

- CAN bus
- Reset line

Audio:

- Mix busses : PGM, SUB, AUX, VT, PFL, TB1/2, NS, MASTER
- Mix bus Monos : PGM, SUB, AUX, VT, PFL
- Monitor bus : CRM Insert Send

4.5.3 I14 – MSTR UNIT Display USB Interface

USB connection between 7”

5 External Hardware Interface Design

5.1.1 I5 – Expansion Slot 1 Interface

Physical Connection: 26P (13x2) Header

5.1.2 I6 – Expansion Slot 2 Interface

Physical Connection: 26P (13x2) Header

5.1.3 I7 – Shuttle Cable (To Extender or Master) Interface

Physical connection: DB44 (3 rows) connector

Pin	Name	Direction	Description
1	PROG_OUT_L	output	Mix bus PROG Left
2	PROG_OUT_R	output	Mix bus PROG Right
3	GND	-	Ground
4	SUB_OUT_L	output	Mix bus SUB Left
5	SUB_OUT_R	output	Mix bus SUB Right
6	GND	-	Ground
7	AUX_OUT_L	output	Mix bus AUX Left
8	AUX_OUT_R	output	Mix bus AUX Right
9	GND	-	Ground
10	VT_OUT_L	output	Mix bus Voice Track Left
11	VT_OUT_R	output	Mix bus Voice Track Right
12	GND	-	Ground
13	PFL_OUT_L	output	Mix bus PFL Left
14	PFL_OUT_R	output	Mix bus PFL Right
15	GND	-	Ground
16	TB1_OUT	output	Mix bus Talkback 1
17	TB2_OUT	output	Mix bus Talkback 2
18	GND	-	Ground
19	NS_L	output	Mix bus Nonstop Left
20	NS_R	output	Mix bus Nonstop Right
21	GND	-	Ground
22	MSTR_RET_L	input	Mix bus Master Return Left
23	MSTR_RET_R	input	Mix bus Master Return Right
24	GND	-	Ground
25	SUB_RET_L	input	Mix bus SUB Return Left
26	SUB_RET_R	input	Mix bus SUB Return Right
27	GND	-	Ground
28	AUX_RET_L	input	Mix bus AUX Return Left
29	AUX_RET_R	input	Mix bus Aux Return Right
30	GND	-	Ground
31	VT_RET_L	input	Mix bus Voice Track Return Left
32	VT_RET_R	input	Mix bus Voice Track Return Right
33	TB1_RT	input	Mix bus Talkback 1 Return
34	TB2_RT	input	Mix bus Talkback 2 Return
35	PROG_MONO	input	Mono PROG mix bus
36	SUB_MONO	input	Mono SUB mix bus

37	AUX_MONO	input	Mono AUX mix bus
38	VT_MONO	input	Mono Voice Track mix bus
39	PFL_MONO	input	Mono PFL mix bus
40	~RESET	input	System reset line
41	GND	-	Ground
42	CANH	in/out	CAN bus High line
43	CANL	in/out	CAN bus Low line
44	GND	-	Ground

I8 – Shuttle Cable (From Extender) Interface

Physical Connection: DB44 (3 rows) connector

Pin	Name	Direction	Desription
1	PROG_IN_L	input	Mix bus PROG Left
2	PROG_IN_R	input	Mix bus PROG Right
3	GND	-	Ground
4	SUB_IN_L	input	Mix bus SUB Left
5	SUB_IN_R	input	Mix bus SUB Right
6	GND	-	Ground
7	AUX_IN_L	input	Mix bus AUX Left
8	AUX_IN_R	input	Mix bus AUX Right
9	GND	-	Ground
10	VT_IN_L	input	Mix bus Voice Track Left
11	VT_IN_R	input	Mix bus Voice Track Right
12	GND	-	Ground
13	PFL_IN_L	input	Mix bus PFL Left
14	PFL_IN_R	input	Mix bus PFL Right
15	GND	-	Ground
16	TB1_IN	input	Mix bus Talkback 1
17	TB2_IN	input	Mix bus Talkback 2
18	GND	-	Ground
19	NS_L	input	Mix bus Nonstop Left
20	NS_R	input	Mix bus Nonstop Right
21	GND	-	Ground
22	MSTR_RET_L	output	Mix bus Master Return Left
23	MSTR_RET_R	output	Mix bus Master Return Right
24	GND	-	Ground
25	SUB_RET_L	output	Mix bus SUB Return Left
26	SUB_RET_R	output	Mix bus SUB Return Right
27	GND	-	Ground
28	AUX_RET_L	output	Mix bus AUX Return Left
29	AUX_RET_R	output	Mix bus Aux Return Right
30	GND	-	Ground
31	VT_RET_L	output	Mix bus Voice Track Return Left
32	VT_RET_R	output	Mix bus Voice Track Return Right
33	TB1_RT	output	Mix bus Talkback 1 Return
34	TB2_RT	output	Mix bus Talkback 2 Return

35	PROG_MONO	output	Mono PROG mix bus
36	SUB_MONO	output	Mono SUB mix bus
37	AUX_MONO	output	Mono AUX mix bus
38	VT_MONO	output	Mono Voice Track mix bus
39	PFL_MONO	output	Mono PFL mix bus
40	~RESET	output	System reset line
41	GND	-	Ground
42	CANH	in/out	CAN bus High line
43	CANL	in/out	CAN bus Low line
44	GND	-	Ground

6 How to use the AURON

As described in the above 33 design pages the AURON , we developed the Auron with the goal of delivering a console that offers both ultimate sound quality and the versatility of a software-controlled mixer. To achieve high-resolution sound—such as a signal path bandwidth exceeding 100KHz—we combined the best of analog and digital techniques.
As technology evolves, the role of software-processed audio, audio-over-IP, and the use of mobile devices in radio studios has become more prominent. With the Auron, we aim to meet the demands of our dealers and customers by providing functionality, flexibility, and a design that feels intuitive.
The Auron console combines familiar D&R features with exciting new capabilities.
It includes a 10-channel fader unit and a separate master unit, which can be expanded with an additional fader unit, similar to our 'Airence' setup. The fader unit features two expansion card slots to accommodate various needs, currently supporting:

- Dante Card (multichannel audio over IP).
- 2-channel BT device connection card for telephone and stereo playback.
- 2-channel POTS Telephone hybrid card.
- 2x Stereo digital audio card (AES3 or S/Pdif, Toslink).
- 2x Stereo phono preamp card.

The Auron hybrid console offers remarkable flexibility with its channel card options.
Two channel cards are currently available:

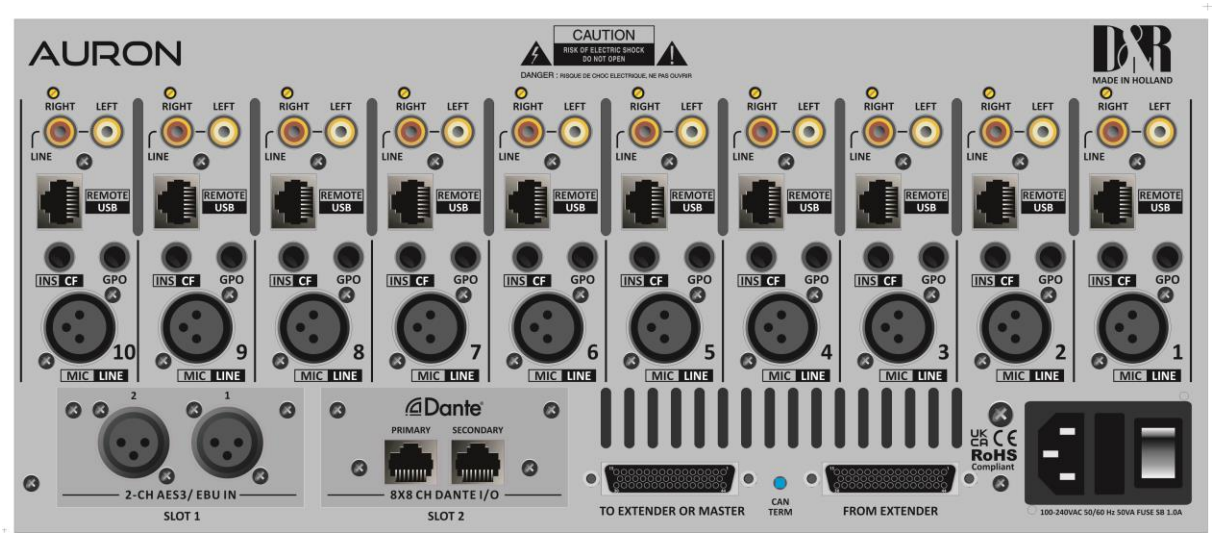
1. **MIC/Line Card**: This card provides direct connections for microphones, stereo line inputs, and studio remote, with internal access to both expansion slots. It features configurable menu options, a 4-step software programmable gain, low-noise optimization, and switchable phantom power. It also includes an insert jack for additional sound processing.
2. **USB/VoIP/Line Card**: This card offers USB and line connections with VoIP functionality over USB, providing a clean feed to callers. It can connect with any expansion module channel and includes direct balanced in and clean feed out connections for external telecommunication devices, such as our telephone hybrid modules.

All channel cards come with GPO jacks with software-programmable functions. Smooth-running K-Alps faders, with optional motor faders, ensure precise audio level control. Direct Talk functionality facilitates communication with callers, and fader start capabilities streamline music control.

Master Section Designed for Radio
The Auron's master section features controls for CRM, headphone levels, and the studio area.
Dedicated switches for launching jingles and controlling input sourcing enhance workflow efficiency.
The internal 7" color touchscreen offers a visual interface for monitoring master levels and controlling onboard processing, with encoders for precise adjustments and easy access to presets, ensuring efficient workflow management.
The modular design, with 10 fader segments and a master section connected by a special cable, offers scalability and flexibility for various setups.
Each fader segment has its own power supply, ensuring reliability and stability in operation. Even redundancy power supplies are possible.
Overall, the Auron's intuitive controls, advanced features, and modern modular design make it a powerful and versatile tool for radio broadcasting, offering both professional functionality and user-friendly operation.

7 Connection back panel

7.1 AURON 10 CHANNEL UNIT



7.1.1 MIC INPUTS

The MIC|LINE input connects microphones to the AURON.
The AURON supports 48 volts DC phantom power if it is switched on in the software.

Female XLR	Pin	Function	Comment
	2	+Audio	Audio in phase
	3	–Audio	Audio out phase
	1	Shield	Ground

7.1.2 INS|CF Jack

This jack is used for Insert in the Mic Line module and functions as balanced Clean feed in the VoIP module.

Jack	Name	Function
	Tip	Send
	Ring	Return
	Sleeve	Shield

7.1.3 GPO Jack

This jack is used for Control signals to Studio remotes and On-Air lights.

Jack	Name	function	Comment
	Tip	GP-Output	GPO: +5V, 560R Ohm GPI: max. +5V with 10k internal pull-up.
	Ring	GP-Input	
	Sleeve	Shield	Ground

7.1.4 Rem/Bal USB

With Mic Line channels the RJ45 connector is used for Remote connection of a Studio remote for the switch signals, led signals and Mic signals. See below how it is wired. A standard Cat-5 cable will automatically connect a Studio remote unit in the right way.

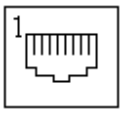


Figure 1: RJ45 Connector

	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Shield
RJ45 name	1A	1B	2A	3B	3A	2B	4A	4B	S
Ball	Left (Hot)	Left (Cold)	Right (Hot)	GPIO1	GPIO1	Right (Cold)	GPIO2	GPIO2	Shield
Mic	Left 1	Right 1	Left 2			Right 2			

7.1.4.1 GPIO TTL/Relay selection

Each RJ45 connection on I/O cards handles audio signals and GPIOs.
The GPIO pins can be configured to work as:

- TTL in and out
  this is selected by GPIO1 jumpers in the place 12 and GPIO2 jumpers in place 45.
  These jumpers are located on the I/O cards, close to the RJ45 connectors.

Pin	Con.	Pair	Pin name	Function	Comment
1	1A	1	Audio 1	Left audio input or output in-phase	Imp. 2k Ohm
2	1B		Audio 1	Left audio input or output out-phase	max. level +20dBu
3	2A	2	Audio 2	Right audio input or output in-phase	Imp. 2k Ohm
6	2B		Audio 2	Right audio input or output out-phase	max. level +20dBu
5	3A	3	GPIO1a	GP-Out	+5V TTL out, 560R
4	3B		GPIO1b	GP-In	+5V TTL in, 10kR int. pull-up
7	4A	4	GPIO2a	GP-Out	+5V TTL out, 560R
8	4B		GPIO2b	GP-In.	+5V TTL in, 10kR int. pull-up
S	GND	S	Shield	GND	Audio ground and reference for GP-In

7.1.5 INPUT CONNECTORS

On the back of your AURON you will also find **Two unbalanced line input RCA Cinch connectors** (stereo input) for connecting CD players or any play-back devices such as cart machines, cassette players, or iPods.
Any line level equipment can be connected here.
The level can be set using the gain control to match most source levels.

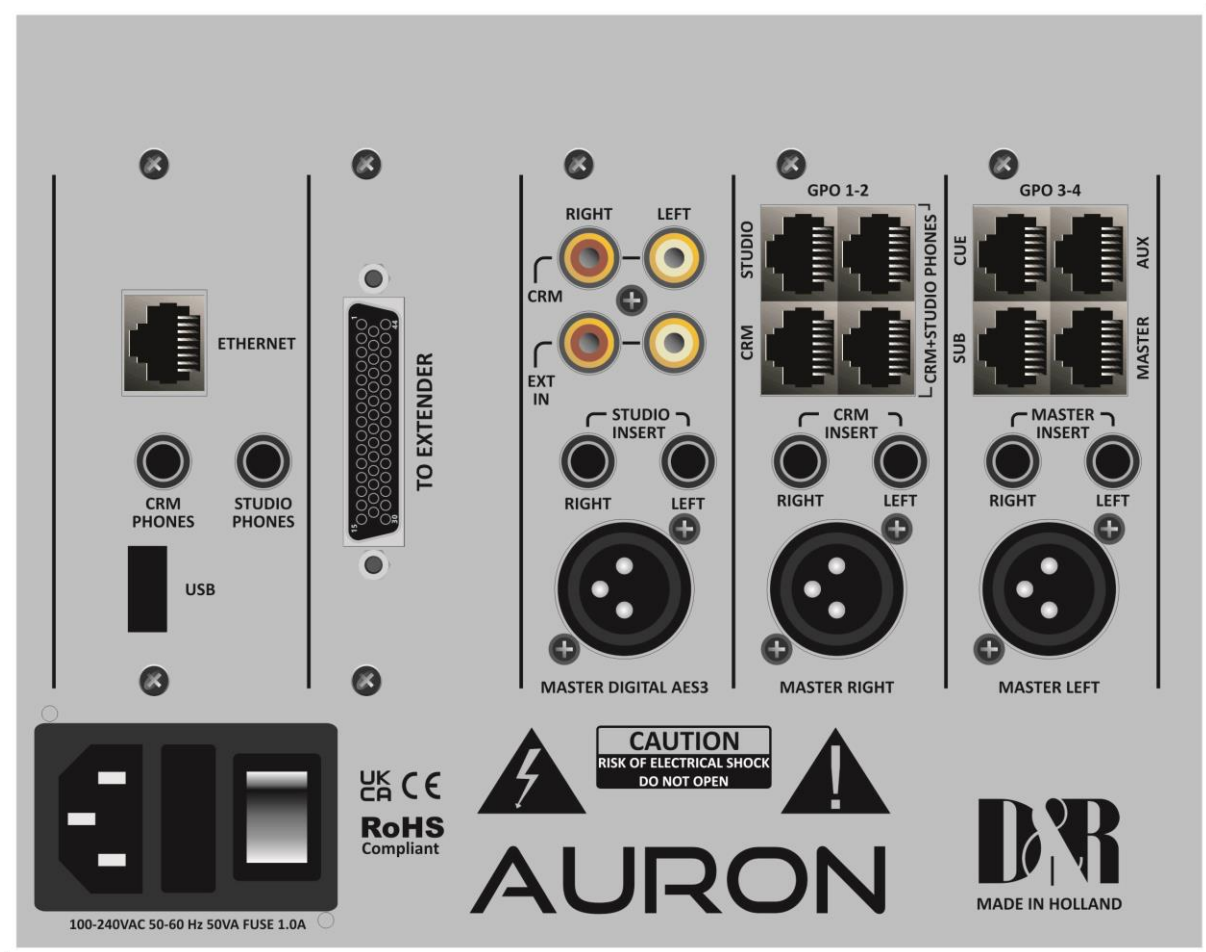
7.1.6 SLOT-1 AND SLOT-2

The Auron has 2 card slots on the back for extra in and output options.

Slot-1 can accept
- Telco (POTS) card.
- BT card for wireless connection with your phone.
- AES3 input card.
- RIAA phono card.

Slot-2 can accept
- Multichannel Dante card 8x8 stereo signals.

7.2 MASTER BACKPANEL



The AURON master has the following connectors to interface with your equipment.

7.2.1 MAIN BALANCED OUTPUTS MASTER LEFT / RIGHT and AES-3 OUTPUT

Male XLR	Pin	Function	Comment
	2	+ Audio	Audio in phase
	3	– Audio	Audio out phase
	1	Shield	Ground

7.2.2 STUDIO CRM and MASTER INSERT Jacks

These jacks are used for Insert in the Master audio signal.

Jack	Name	Function
	Tip	Send
	Ring	Return
	Sleeve	Shield

7.2.3 MASTER|AUX|SUB|CUE

RJ45 connectors in the back panel.

Pin	Pair	Output	Function	Comment
1	1	MASTER|AUX|SUB|CUE	Left line output in-phase	Imp. 56Ω
2		MASTER|AUX|SUB|CUE	Left line output out-phase	max. level +26dBu
3	2	MASTER|AUX|SUB|CUE	Right line output in-phase	Imp. 56Ω
6		MASTER|AUX|SUB|CUE	Right line output out-phase	max. level +26dBu
		If jumper TTL-GPIO	If jumper GPO	
5	3	GPIO A=1	GP-Out (TTL)	Photo MOS relay (max 50V, 200mA)
4		GPIO A=1	nGP-In (TTL)	
7	4	GPIO A=2	GP-Out (TTL)	Photo MOS relay (max 50V, 200mA) / see chapter 7.1.4.1
8		GPIO A=2	nGP-In (TTL)	
S	S	Shield	GND	Audio ground and reference for GP-In

7.2.4 CRM+STUDIO PHONES | CRM | STUDIO

J45 connectors in the back panel.

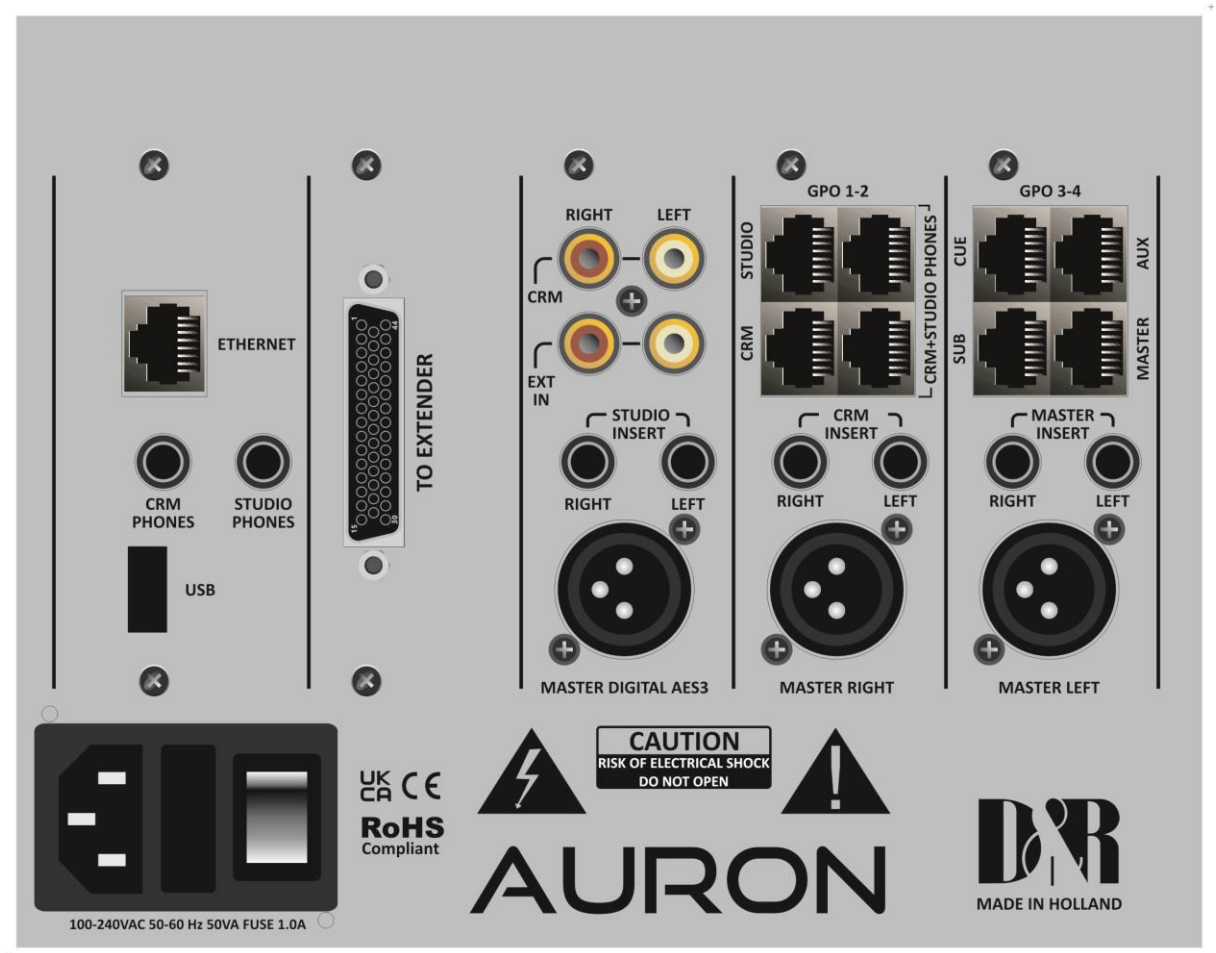
Pin	Pair	Output	Function	Comment
1	1	A=CRM	Left line output in-phase	Imp. 56Ω
2		A=CRM	Left line output out-phase	max. level +26dBu
3	2	A=CRM	Right line output in-phase	Imp. 56Ω
6		A=CRM	Right line output out-phase	max. level +26dBu
		If jumper TTL-GPIO	If jumper GPO	see chapter 7.1.4.1
5	3	GPIO A=1	GP-Out (TTL)	Photo MOS relay (max 50V, 200mA)
4		GPIO A=1	nGP-In (TTL)	
7	4	GPIO A=2	GP-Out (TTL)	Photo MOS relay (max 50V, 200mA) / see chapter 7.1.4.1
8		GPIO A=2	nGP-In (TTL)	
S	S	Shield	GND	Audio ground and reference for GP-In

The CRM cinch connectors are unbalanced extra outputs for loudspeakers.

The EXT input Cinch connectors can be listened to via the Off Air switch.

You will also find the **TO EXTENDER** connector for the Fader unit.
An Ethernet connection, an extra CRM and STUDIO stereo phones jack.

The power supply can handle a range of 100 to 240 volts at 50 or 60Hz AC.
A redundant power supply can be provided for by 2 external 12V 5A adapters connected to the master unit by 5 pin XLR connectors replacing the Mains Inlet.



ALL RJ 45 connectors can be connected to Break out panels that are available in the following formats, see the next page.

7.3 19” Patch panels / Breakout panels

The 19” Break out patch panels convert the RJ45 Shielded connection to the industry standard connectors such as XLR and Jack. There are various patch panels available:

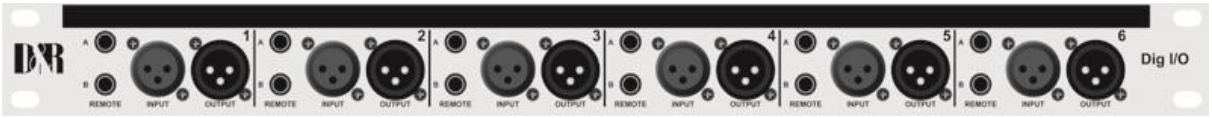
60881645, The MIC I/O with 8 MIC XLR, 16 remote jacks, 4 stereo phone jacks, 2 Line out jacks.

60881646, Line I/O jack with 16 balanced Line in/out jack and 16 remote jacks.

60881647, Line input XLR with 12 balanced Line in XLRs (female) and 12 remote jacks.

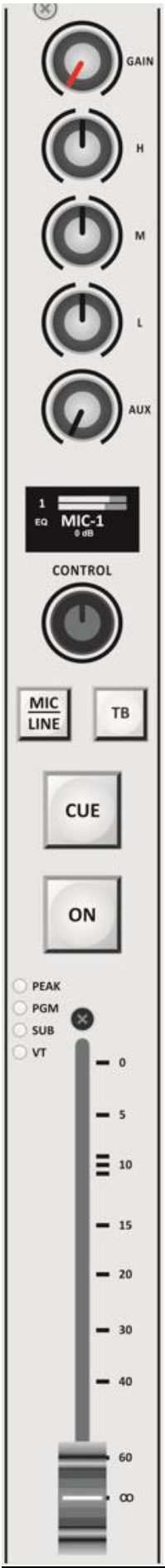
60881648, Line output XLR with 12 balanced Line out XLRs (male) and 12 remote jacks.

60881649, Line I/O XLR with 8 balanced Line in XLRs (female), 4 balanced Line out XLRs (male) and 12 remote jacks.



60881650, Dig I/O with 6 stereo digital inputs and 6 stereo digital outputs.

7.4 MIC/LINE CHANNEL FUNCTIONS



There are at the moment 2 versions of Auron channels to choose from, the Mic/Line channel and the USB/VoIP channel. These pcb's can be put anywhere in the 10 channel frame and in any sequence.
For instance 1-8 Mic/Line channels and 2 USB/VoIP channel on 9/10.
If you need 4 USB channels for play-out software, position 7/8/9/10 can be USB channels./USB

The channel controls are very familiar for any engineer starting with a gain control, 3 band EQ, Aux send. Display Rotary encoder and 2 small free programmable switches and the CUE and ON switch plus a K-Alps fader or motorfader.

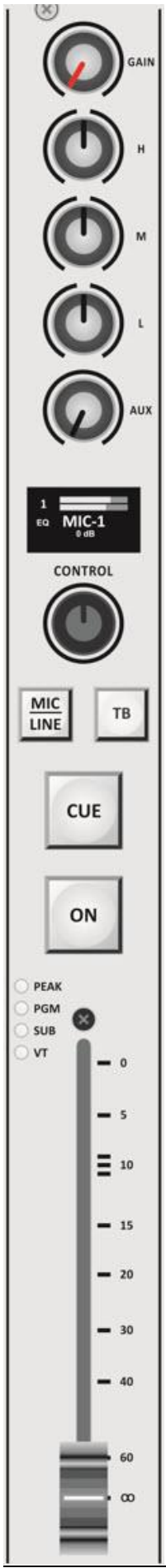
The 2 small switches are default programmed as MIC/LINE and Talk Back.
Any other function can be given to that switch pretty easily. We will explain that later.

Display MIC/LINE MODULE
The O-LED display located above the encoder shows all possible channel programming locally.
You choose by rotating the encoder and push to confirm.
You have the following options to choose from when you have installed a Mic Line PCB

S1 means slot 1 on the back of the console.
S2 means slot 2 on the back of the console.

SOURCE	None > Line > S1Ch1 > S1Ch2 > S2Ch1 > S2Ch1-8 > MIC
EQ	ON/Off
AUX	Pre/Post
Phantom	On/Off
Mic Gain	0|20|40|60dB
Insert	Enable / disable

7.5 USB/VoIP CHANNEL FUNCTIONS



There are at the moment 2 versions of Auron channels to choose from, the Mic/Line channel and the VoIP channel. These pcb's can be put anywhere in the 10 channel frame and in any sequence.
For instance 1-8 Mic/Line channels and 2 VoIP channel on 9/10.

The channel controls are very familiar for any engineer starting with a gain control, 3 band EQ, Aux send. Display Rotary encoder and 2 small free programmable switches and the CUE and ON switch plus a K-Alps fader or motorfader.

The 2 small switches are default programmed as MIC/LINE and Talk Back.
Any other function can be given to that switch pretty easily. We will explain that later.

Display MIC/LINE MODULE
The O-LED display located above the encoder shows all possible channel programming locally.
You choose by rotating the encoder and push to confirm.
You have the following options to choose from when you have installed a VoIP PCB

S1 means slot 1 on the back of the console.
S2 means slot 2 on the back of the console.

SOURCE Line > S1Ch1 > S1Ch2 > S2Ch1-8 > VoIP > Balanced Line
EQ ON/Off
AUX Pre/Post

Display USB/VoIP MODULE
The O-LED display located above the encoder shows all possible channel programming locally.
You choose by rotating the encoder and push to confirm.
As you can see this USB/VoIP module lacks the Mic line options of course.

7.6 MASTER MODULE FUNCTIONS

In the picture above you see all master controls except the display and its functions above mentioned controls.
There are 4 Encoders that control functions in the LCD.
We will discuss the features in a separate chapter.

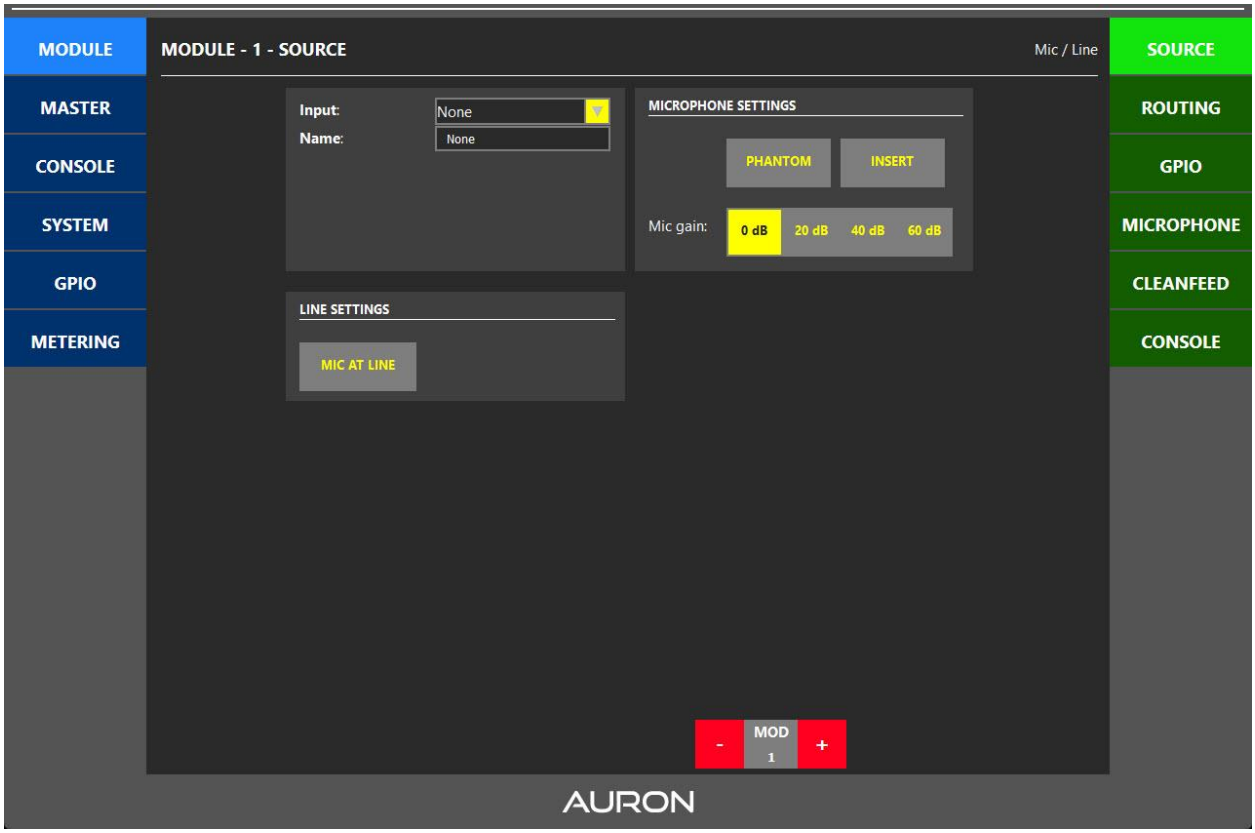
CONTROL You see a bank of 16 switches that can be used to start jingles in your play-out software.
CRM Here are all the input sources for the Control Room Monitor.
STUDIO Here are all the input sources for the Studio Monitor.

Below this section you see the level controls Phones and Monitor for both the CRM and Studio areas in your building.

7.7 DISPLAY FUNCTIONS

This is the metering display that will be on screen most of the time when you are working.
It shows the outputs of Main Master, Sub output and on 4 smaller meters CRM/STUDIO/AUX/PFL(CUE)
A clock runs in the centre of this screen.
There are buttons for Silence detection, ON-AIR and VoIP indicators.
To enter the configuration display please touch **"CONFIGURE AURON"** .

7.7.1 MODULE-SOURCE



This Display shows the audio routing of module 1.
Yellow or white means active, blocks greyed out inactive.
On the bottom of the display you can select other input modules to look at and change settings by touch or by the encoders below the display.
The **INPUT** window (now shows None) lets you select Mic Line and if you have bought cards also all Slot 1 and 2 cards.
In the Name window, showing “none” you can enter a name for the module such as DJ

LINE SETTINGS

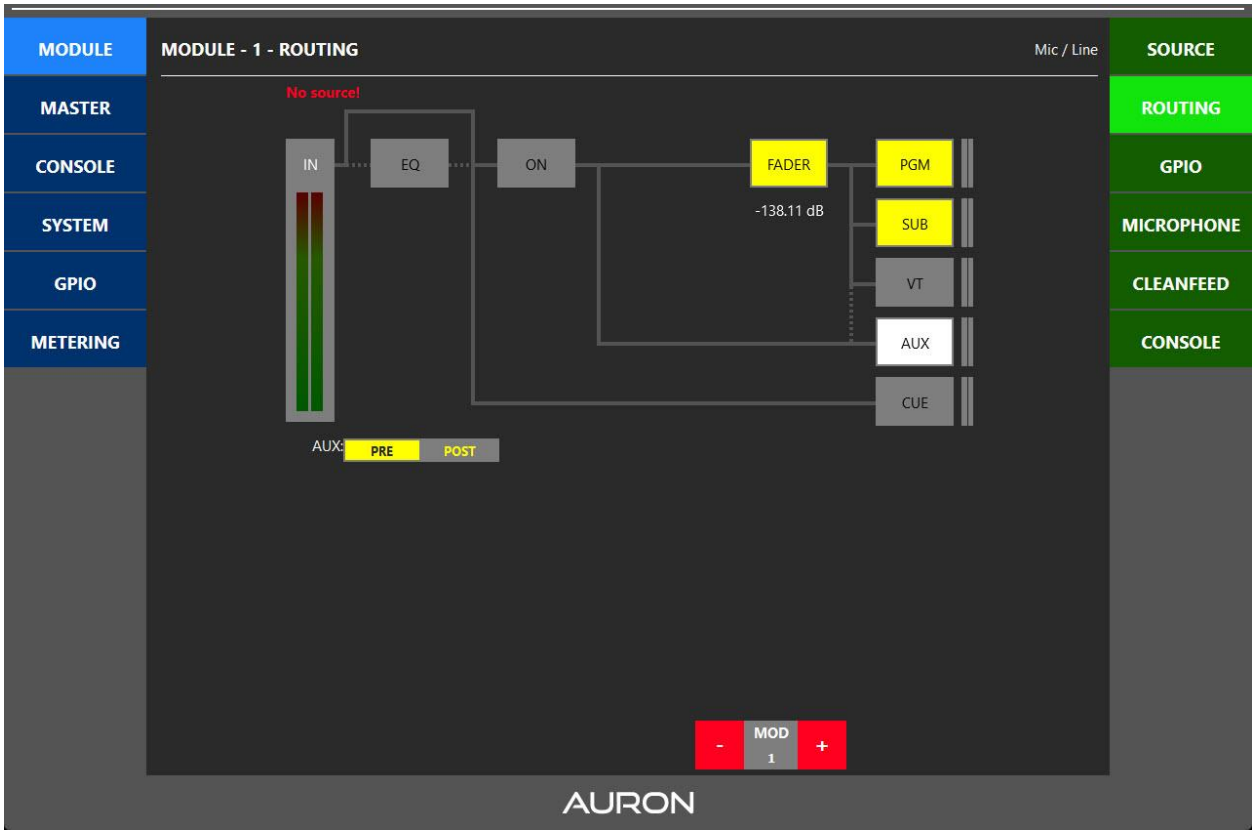
MIC AT LINE active (yellow) means CRM mute will work when your mic first runs through a sound processor that is connected to the Line input.

MICROPHONE SETTINGS
Here you can activate PHANTOM and INSERT.

MIC GAIN
An extra 20/40/60dB of Gain can be added.

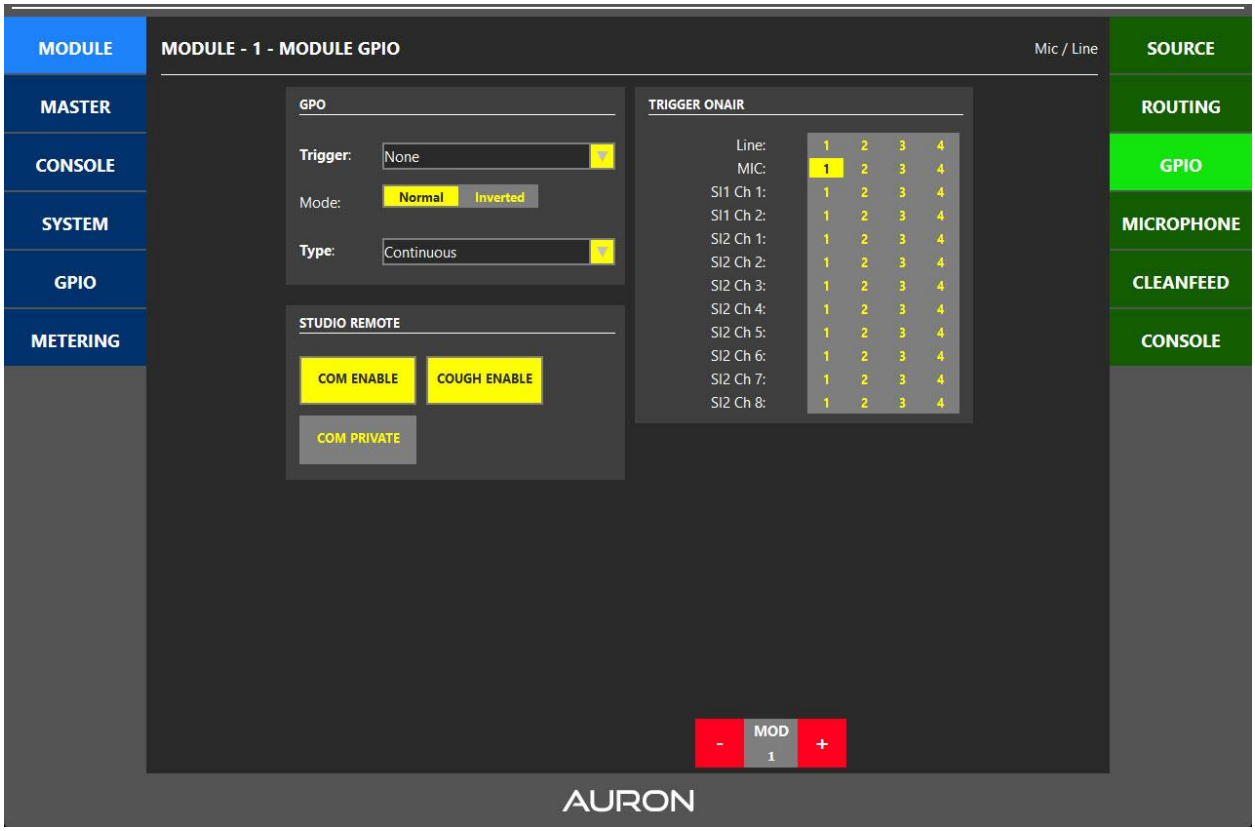
MOD
Here you can go to other module settings and it shows the channel you are working in.

7.7.2 MODULE-ROUTING



This display shows the complete routing of the input module 1.
The greyed out section are not active, you can click on the function blocks to activate the section you want.
The AUX signal is always active and routed to its output op amps.

7.7.3 MODULE-GPIO



This Display shows the MODULE | GPIO settings per module.

In the **GPO** section you can select in the drop down menu to the following functions.

- Fader start.
- Module on.
- Module active.
- Microphone Active.
- VoIP active.

The resulting action can be inverted from normal to Inverted.

The TYPE of GPO can be set to

- Continuous
- Pulse by on You can enter the Pulse time between 0 and 255 mSec.
- Pulse by Off You can enter the Pulse time between 0 and 255 mSec.
- Pulse by Change You can enter the Pulse time between 0 and 255 mSec.

STUDIO REMOTE

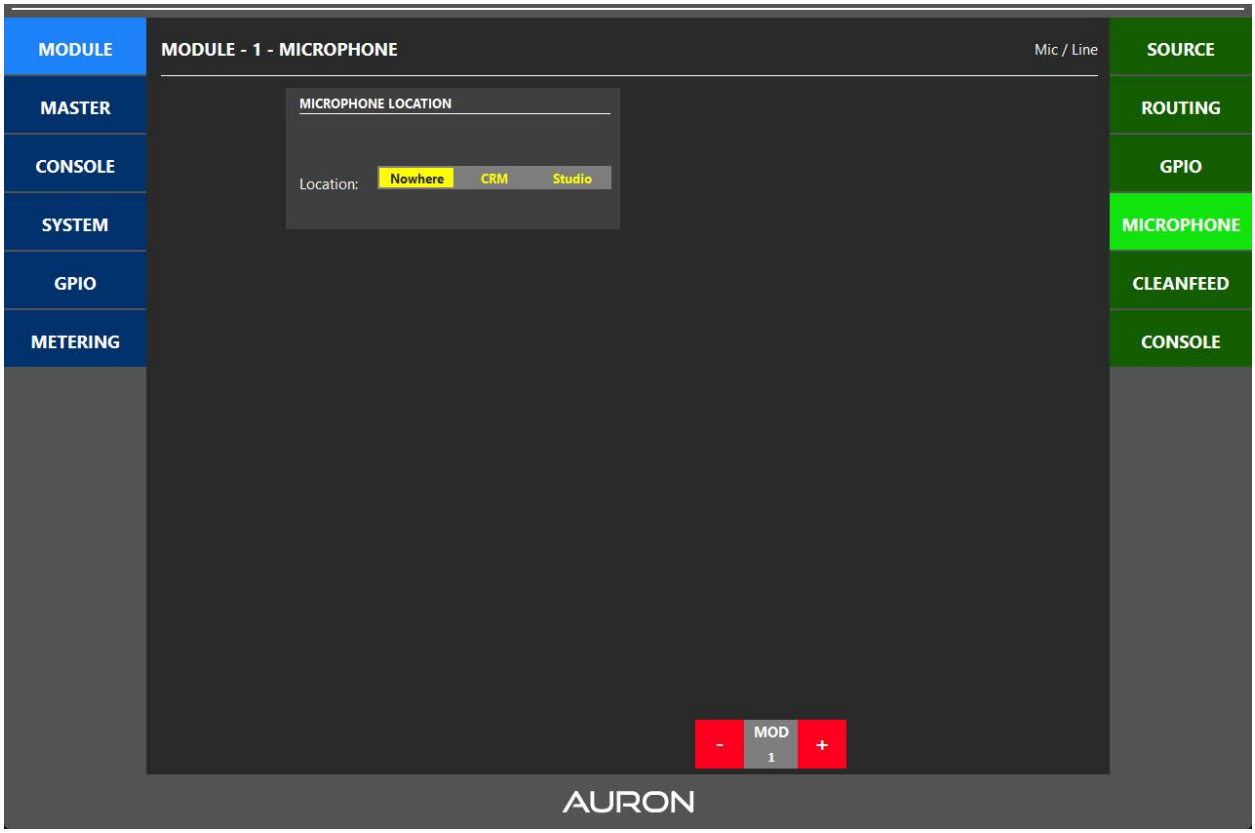
Here you can choose

- COM ENABLE On or off.
- COUGH ENABLE On or off.
- COM PRIVATE On or off.

TRIGGER ONAIR

Here you can select what action per channel and input (also from the card slots S1 and S2) will trigger the ON-AIR light when connected to one of the 4 GPO outputs on the console.

7.7.4 MODULE-MICROPHONE



This display **MODULE-MICROPHONE** lets you choose where your DJ mic is important for Mute functions.

Your **MICROPHONE LOCATION** can be

- **Nowhere** (not in the Control Room or Studio)
- **CRM**
- **STUDIO**

This functionality is not available for a USB/VoIP module.

7.7.5 MODULE-CLEANFEED

But if you selected a USB/VoIP module then the following settings are available.

CLEANFEED GAIN

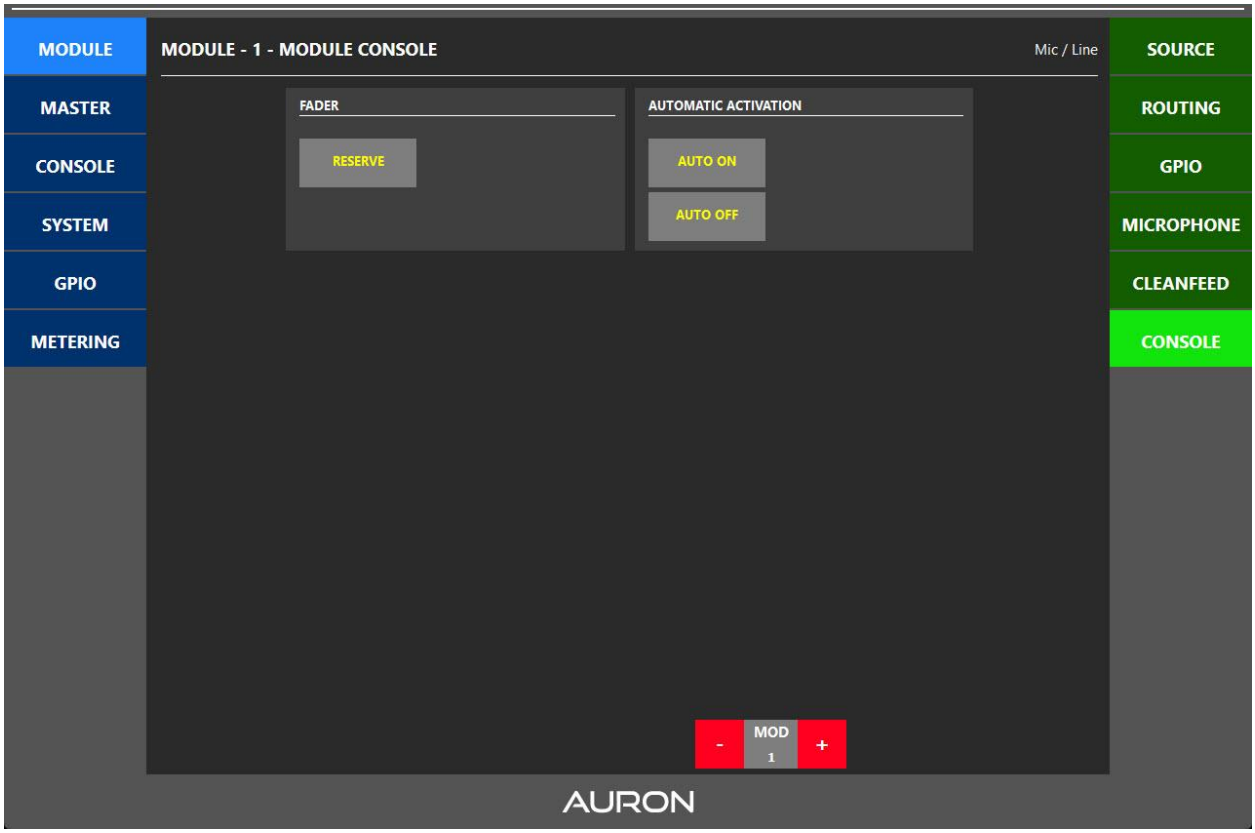
The SEND gain can be set from infinity to 0dB.

TALKBACK TO CLEANFEED

The AUTODIM function reduces the level of the caller when the DJ speaks.

BUS
Here you select for which bus this works.

7.7.6 MODULE-CONSOLE



This display lets you set values for

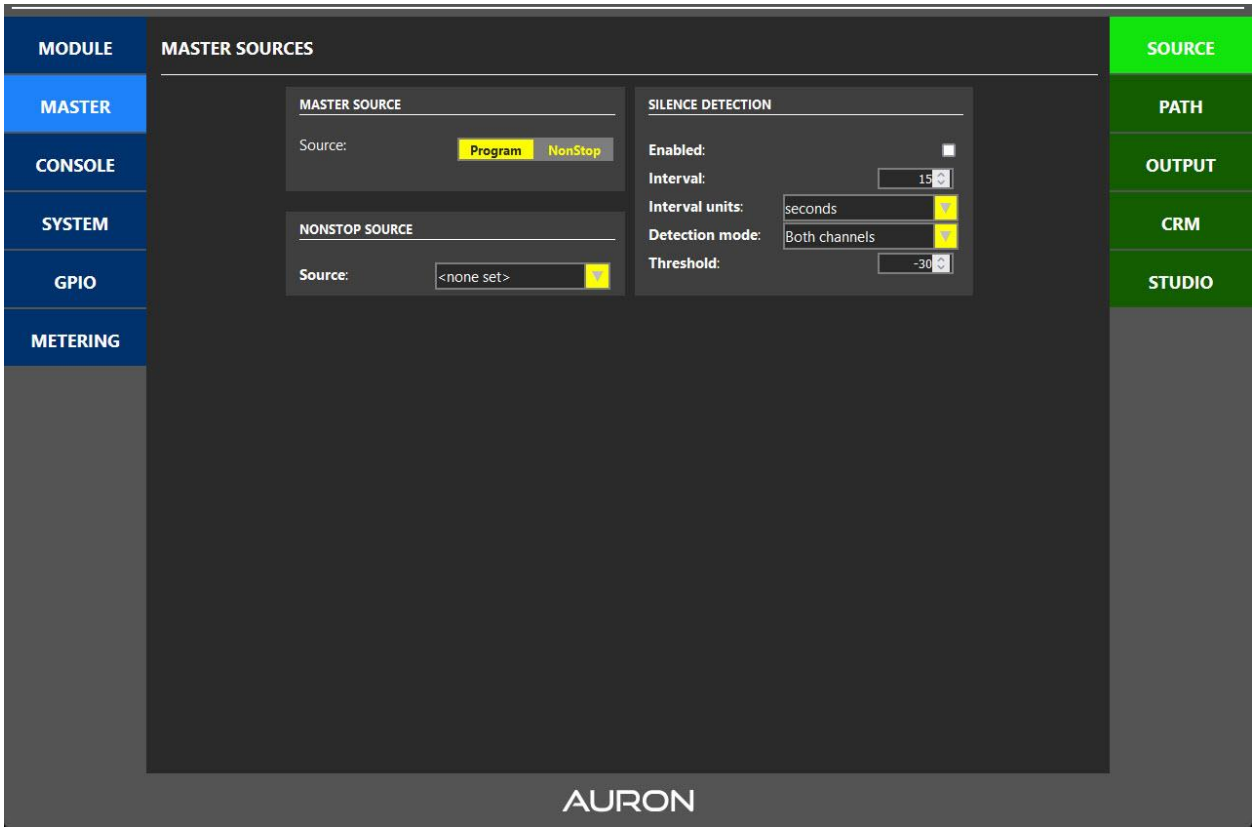
FADER
to have 10dB extra fader gain moving the 0dB position 10dB lower on the front panel.

AUTOMATIC ACTIVATION

AUTO ON The module is automatically set to ON status when the fader is above -120dB.

AUTO OFF The module is automatically set to OFF status when the fader is below -120dB.

7.7.7 MASTER-SOURCES



This display shows all the settings for the master section of the AURON

MASTER SOURCE
Here you select which signal goes to the main program outputs.
It is the normal **Program** output or the **NON STOP** signal

NON STOP SOURCE
The source of the NON STOP signal can be selected in the drop down menu.

- Module_1 line (or from one of the other available channel line inputs)
- BT card
- Dante card 1-8

SILENCE DETECTION

- **ENABLED** Here you can active (enable) the silence detection.
- **INTERVAL** Here you enter a value in Sec or Minutes when the detector responds.
- **INTERVAL UNITS** Here you select it to be Seconds or Minutes.
- **DETECTION MODE** Here you select which channel the silence detector responds to.
- **THRESHOLD** Here you select at which level the Silence detector responds.

7.7.8 MASTER-PATH

This display lets you select if you want the master insert enabled (yellow) or disabled (greyed out).

7.7.9 MASTER-OUTPUT

Here you can select the final output levels of the **CUE | SUB | AUX | MASTER** program signal.

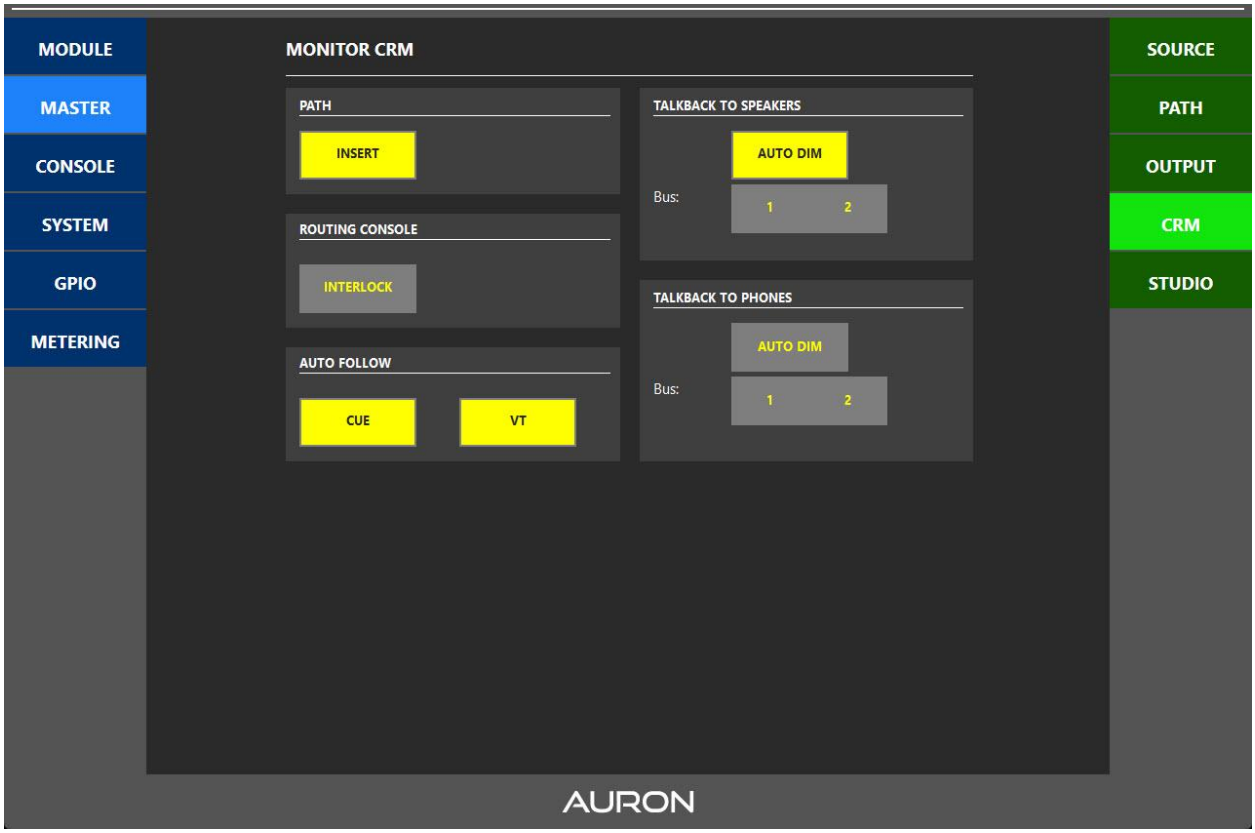
MUTE ALL OUTPUTS

All outputs can be muted (yellow)

AES

Here you select the digital sample frequency the be 48kHz or 96kHz .

7.7.10 MASTER-CRM



This MASTER **MONITOR CRM** display gives the adjustment of the following settings.

PATH
You can enable the CRM insert

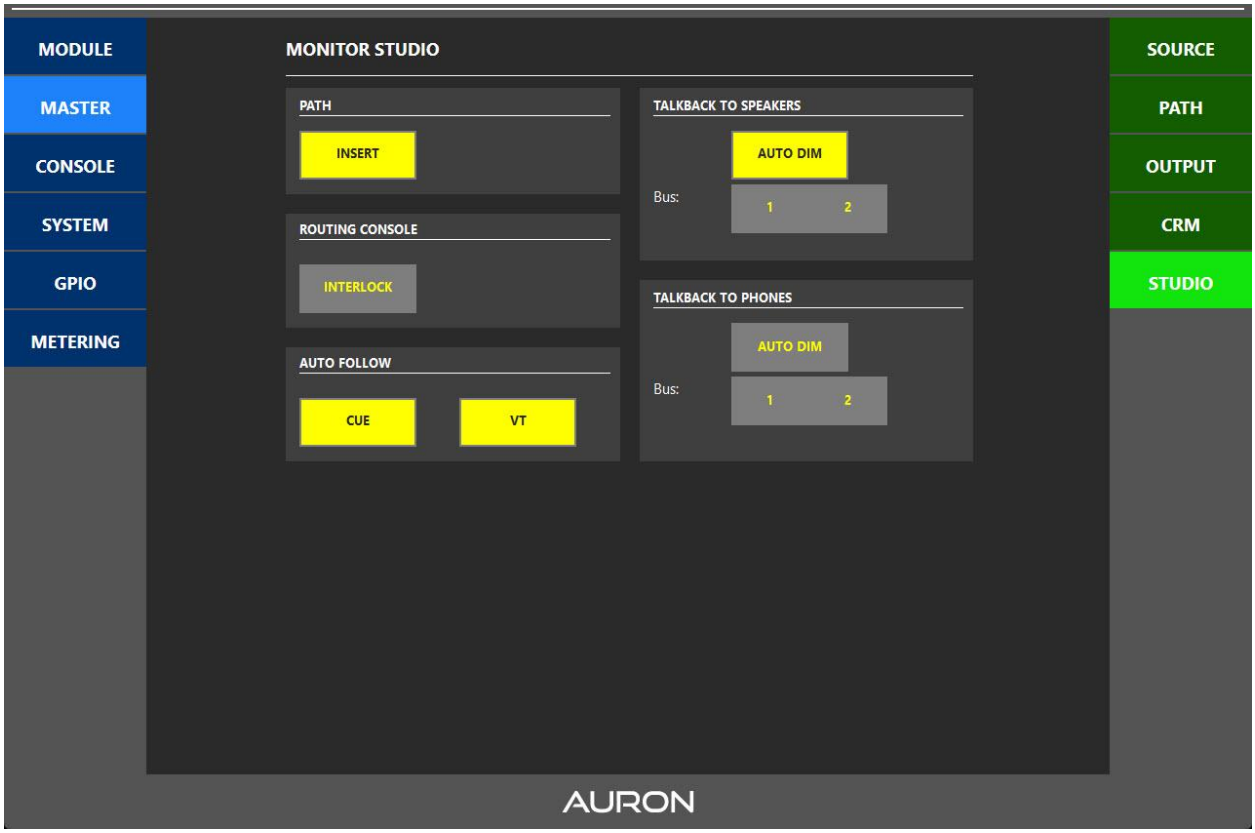
ROUTING CONSOLE
Here you can decide if you want the routing to be INTERLOCKING or not

AUTOFOLLOW
The CRM can either follow the CUE or the Voice Track (VT)

TALKBACK TO SPEAKERS
If you talk to the 2 Talk Back busses you can select to have the Program output dimmed on these busses.

TALK BACK TO PHONES
If you talk to the 2 Talk Back busses you can select to have the Program output dimmed on these busses.

7.7.11 MASTER-STUDIO



This MASTER **MONITOR STUDIO** display gives the adjustment of the following settings.

PATH
You can enable the CRM insert.

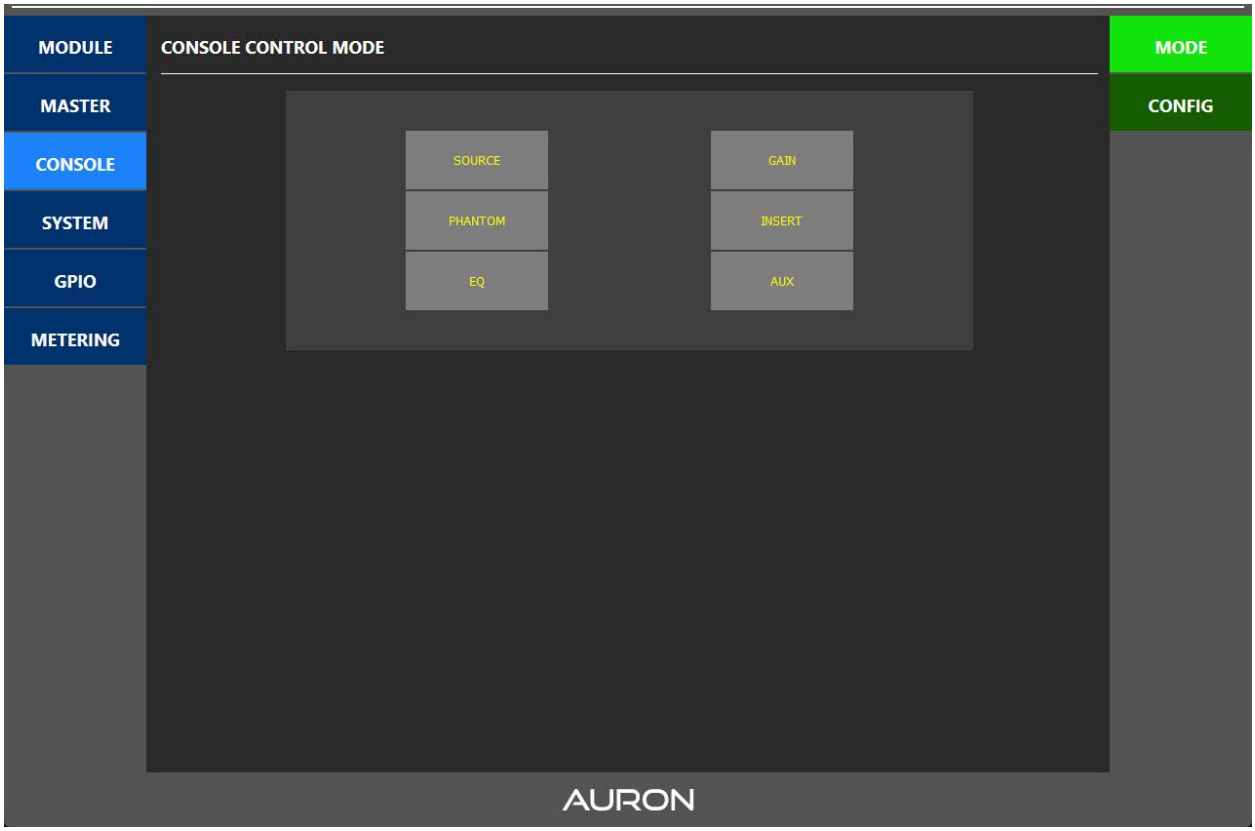
ROUTING CONSOLE
Here you can decide if you want the routing to be INTERLOCKING or not.

AUTOFOLLOW
The CRM can either follow the CUE or the Voice Track (VT).

TALKBACK TO SPEAKERS
If you talk to the 2 Talk Back busses you can select to have the Program output dimmed on these busses.

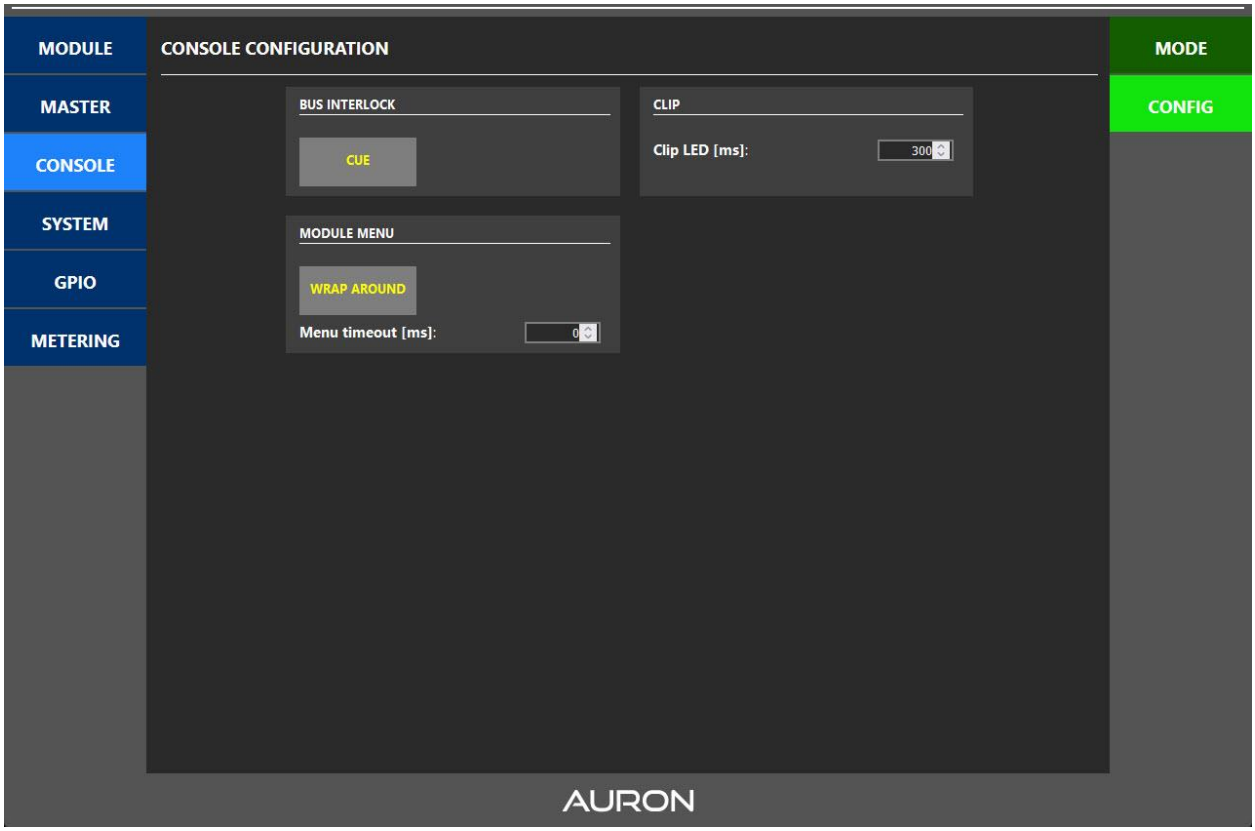
TALK BACK TO PHONES
If you talk to the 2 Talk Back busses you can select to have the Program output dimmed on these busses.

7.7.12 CONSOLE-MODE



This **CONSOLE CONTROL MODE** display gives you the possibility to switch above settings for all the input modules in one fast action. These settings will overrule all individual settings.

7.7.13 CONSOLE-CONFIGURATION



This **CONSOLE CONFIGURATION** display lets you adjust the following settings

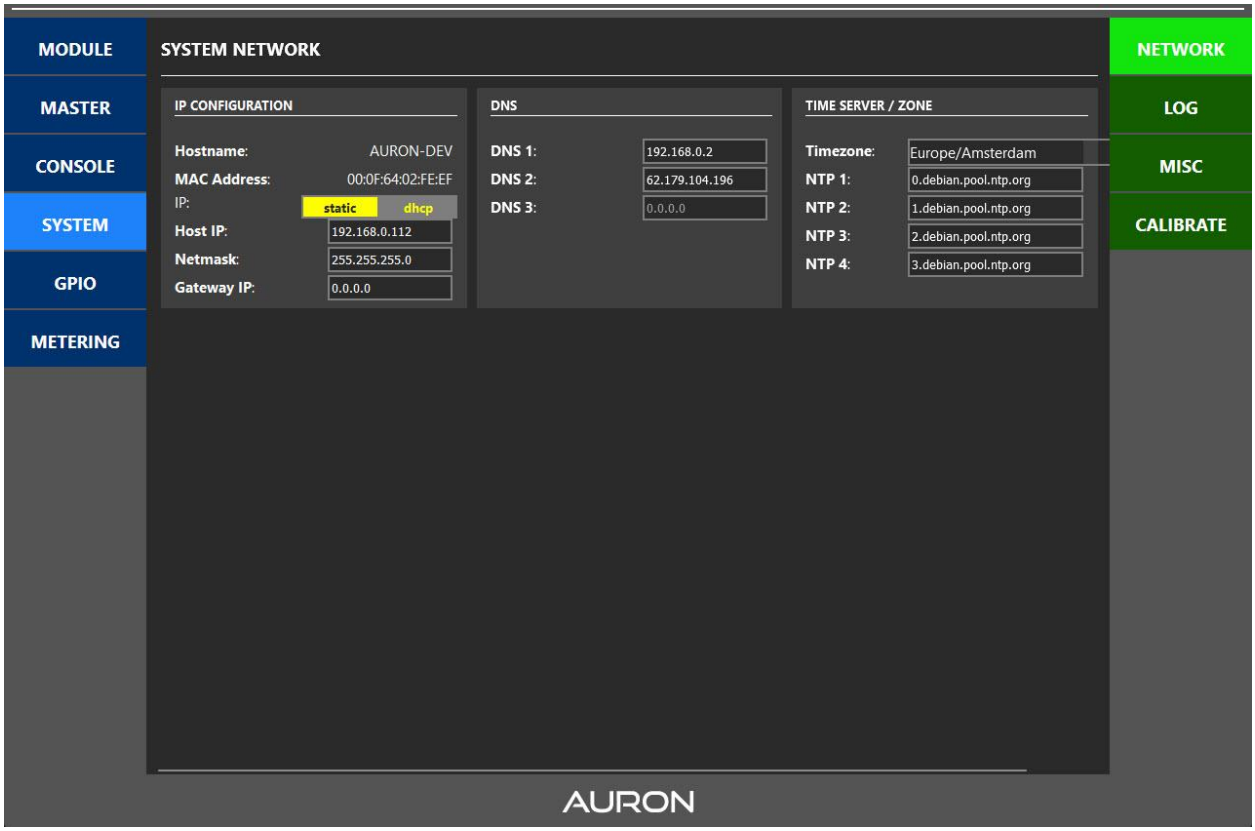
BUS INTERLOCK
Here you can set the Cue switches to act interlocking or adding.

CLIP
Here you can enter a value for the channel Clip led on time after activation in mSec.

MODULE MENU
When the rotary encoder is turned past the last item, it starts over (enabled) or hang at the end (disabled, which is the default setting now.

MENU TIME OUT
When the encoder button is pressed on the module, how long does it take before the menu closes itself in milliseconds (0 = never, default).

7.7.14 SYSTEM-NETWORK



In this **SYSTEM NETWORK** display you can enter all the basic info for proper network functioning.

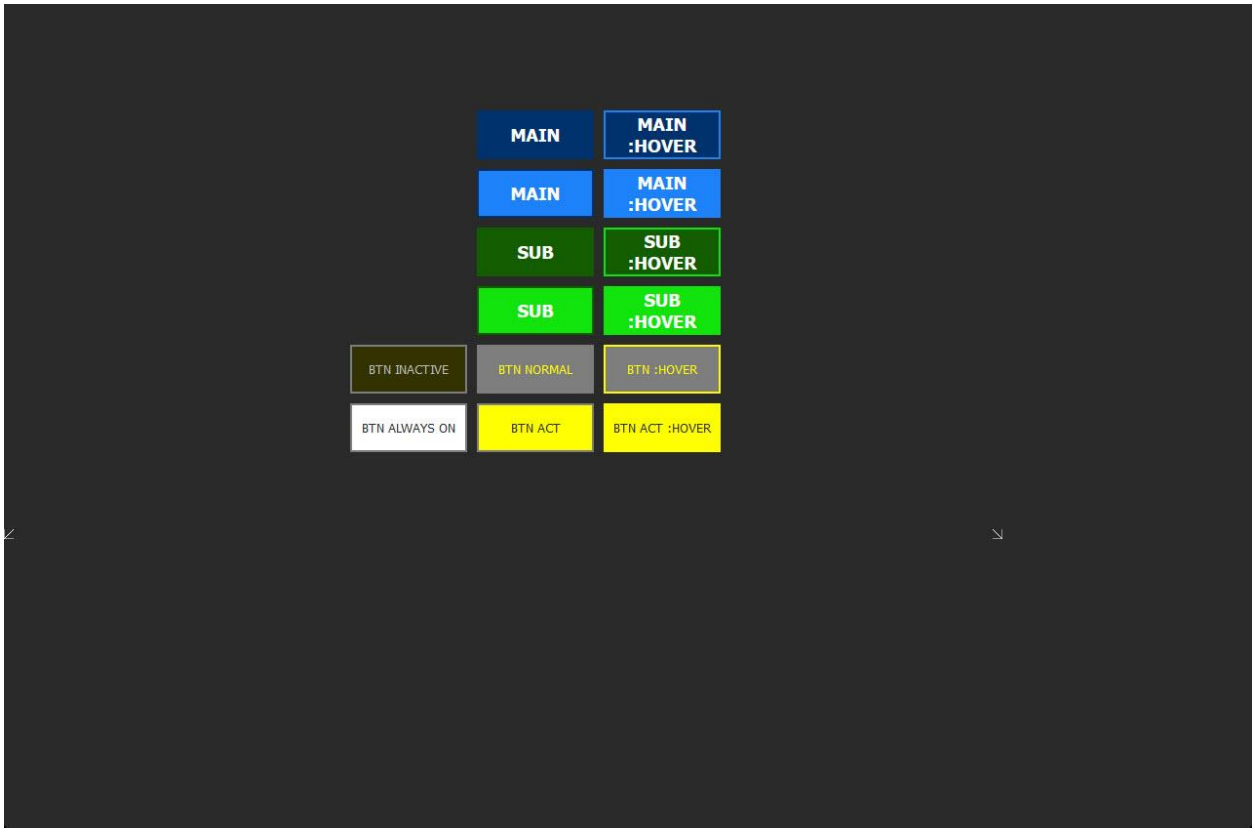
7.7.15 SYSTEM-LOG

This **SYSTEM LOG** display will show saved log files important for debugging and knowing what happened in case there was a problem.

7.7.16 SYSTEM - MISCELLANEOUS

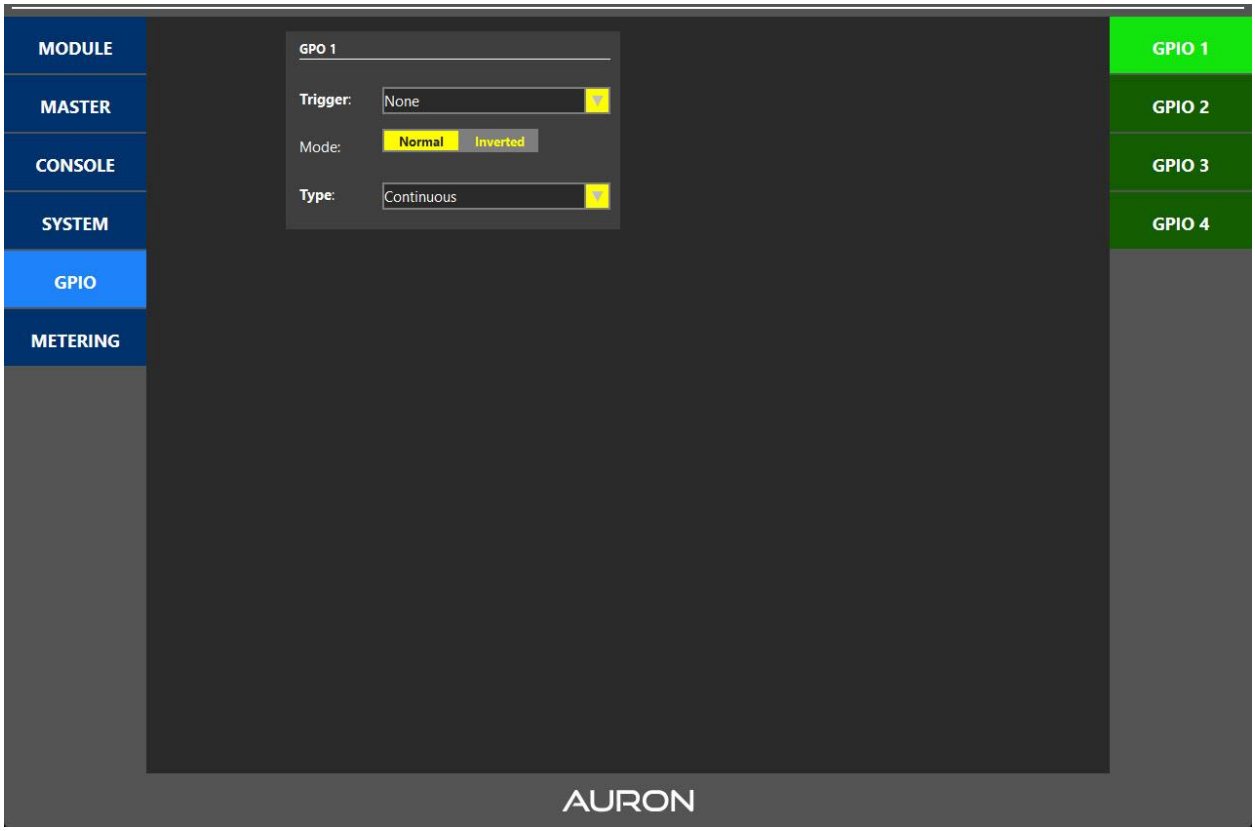
This **SYSTEM MISC** display is self explanatorily.
Here you refresh the display, restart your software and power down the systems software.

CALIBRATE



This display is not for users but for the software engineers,
Whenever clicking on any item it will switch to SYSTEM-MISC, in production consoles it will be removed.

7.7.17 GPIO – GPIO 1-2-3-4



This **GPO 1**,2,3,4 Display are designed to choose the source of the trigger.

You can choose the following **triggers**

- None
- ON-AIR 1
- ON-AIR 2
- ON-AIR 3
- ON-AIR 4
- VT ACTIVE
- NON STOP Active
- VoIP active

MODE

- Normal
- Inverted

TYPE

- Continuous
- Pulse by on — You can enter the Pulse time between 0 and 255 mSec
- Pulse by Off — You can enter the Pulse time between 0 and 255 mSec
- Pulse by Change — You can enter the Pulse time between 0 and 255 mSec

PULSE TIME

- You can enter the Pulse time between 0 and 255 mSec

This concludes all the settings in the display of the AURON to make the console work as you would like to see it working.

8 SPECIFICATIONS

MIC/LINE MODULE INPUTS

Mic inputs	: balanced 2kOhm, XLR.
Phantom	: +48 volt.
Noise	: - 128 dBr (A-weighted).
Sensitivity	: - 70dB min, OdB max.
Insert	: Jack unbal. send 600 Ohm, -10dBV.
Return	: unbalanced 10kOhm -10dBv.
Line inputs	: unbal., 10kOhm, Cinch.
Gain potentiometer	: range of 40dB plus another 3 steps of 20dB up to 60 dB of extra gain
Phono inputs	: unbal. 47kOhm, 5 mV.
USB	: 2x Stereo in and 2x stereo Program out.
2 Track return	: - 10 dBV at 10kOhm.
Aux returns	: - 10 dBv at 10kOhm stereo

TELECOMMUNICATION MODULE (VoIP+BT)

RJ-11 connectors for phone line/dialler
Mix Minus rejection @1kHz -30dB.

OUTPUTS

Left/Right	: + 4 dBu bal. XLR.
Monitor/Aux	: + 4dBu unbal. on Cinch.
Cleanfeed/Announcer	: + 4dBu, Jacks.
Tape output	: -10dBv, unbal. Cinch.
Headphone	: 16-600 Ohm, Jack.
Announcer	: 16-600 Ohm, Jack.
USB out	: Main program stereo signal
AES/EBU	: Output level: 0dBu = -9dBFS) (44.1kHz) (optional).

EQUALIZER

High: + / -12 dB at 12kHz shelving.
Mid : + / -12dB at 1 kHz bell curve.
Low : + / -12dB at 60 Hz bell curve.

OVERALL

Frequency response	: 10 - 100.000Hz.
Distortion	: < 0.009% max at 1 kHz.
GPO	: Opto FET for remote control.
Ac input range	: 85Volt AC up to 264Volt.
Power consumption	: 36VA per section.

Emberplus via Ethernet Interface.

OPTIONS

10 channel Fader extenders
Motorfaders
AES-3 Program outputs
Dante card
BT card
Telco card (POTS)
Several Break out panels to convert RJ11 connections into XLR's and/or Jacks.

DIMENSIONS

10 CHANNEL SECTION
Left-Right : 383mm width.
Front-Back : 400mm.
Space below front panel : 20mm for table top. Weight: 11 kg.
For Drop through mounting cut a hole of
W 365 x F/B 385 mm (console height at the backside is 116mm, frontside 70mm).

Shipping dimensions carton : 49x118x26cm

MASTER SECTION
Left-Right : 220mm width.
Front-Back : 400mm.
Height : 95mm
Space below front panel: 20mm for table top. Weight: 3 kg.
For Drop through mounting cut a hole of
W 205 x F/B 385 mm (console height at the backside is 116mm, frontside 70mm).

Shipping dimensions carton : 48x34x26cm

EU Declaration of Conformity (DoC)

CE

We

Company name	: **D&R Electronica BV**
Postal address	: Rijnkade 15B, 1382GS Weesp, The Netherlands
Telephone number	: 0031 294 418014
E-Mail address	: sales@d-r.nl
Website	:www.dnrbroadcast.com

deciare that the DoC is issued under our sole responsibility and belongs to the following product:

Apparatus model/Product	: **AURON**
Type	: n.a.
Serial number	: all production numbers

Object of the declaration (identification of apparatus allowing traceability; it may include a color image of sufficient clarity where necessary for the identification of the apparatus):

The object of the declaration described above is in conformity with the relevant Union harmonization legislation: Directive 2004/108/EC (until 19th April, 2016) and Directive 2014/30/EU (from April 20th, 2016)
The following harmonized standards and technical specifications have been applied and passed the following product specifications:

Safety	: IEC 60065 (7th ed. 2001)
EMC	: EN 55013 (2001+A1)
	: EN 55020 (1998)

Supplementary Information:
The product passed the specifications of the following regulations;

: Low voltage 72 / 23 / EEC
: EMC-Directive 89 / 336 / EEC. as amended by Directive 93/68/EEC

(*) The product is tested in a normal user environment.

Signed for and on behalf of: D&R Electronica BV

Weesp, 1-1-2024	Duco de Rijk, CEO
Place and date of issue	Name, function, signature

9 SERVICE INFORMATION

Below you see the part numbers of the used parts for service.

Date : 21-08-24 [17:01] PARTS LIST AURON CHANNEL UNIT K-ALPS FADERS page : 1

60881901 AURON 10CH FADERUNIT K_Alps

Partnumber	Description	Amount
10700129	Adereindhuls ong. 1.50mm/L=7	15.0000
10101807	Auron Venster Oled_p	10.0000
10700786	Bout M 3x5 verzkop/Torx/SILVER	20.0000
10600497	Cable 3 core 3x0.75 black	0.0100
10600498	Cable 3 core Euro 1.5m 3x0.75	1.0000
10600044	Cable AURON DB44 male > female	1.0000
10600070	Cable socket + holder Red M3	1.0000
10600434	Conn flatcable 10p female	20.0000
10600470	Conn flatcable 20p fem ROHS	6.0000
10600132	Conn flatcable 34p female	11.0000
10600139	Conn flatcable 40p female	11.0000
10600188	Conn wired 4pole 20cm Axum MF	10.0000
10990650	FUSE 1Amp slow 5x20mm 522.517	1.0000
10300094	Fader ALPS-Klin 100mm 10kB	10.0000
10650446	Flatcable 10p r1.27	85.0000
10650448	Flatcable 20p r1.27	60.0000
10650159	Flatcable 34p r1.27	60.0000
10650450	Flatcable 40p r1.27	60.0000
10151951	Frame Auron 10CH FaderUnit_C	1.0000
10101801	Front Auron SLOT1/2 BLIND_c	2.0000
10700625	Kartelring M3 D-6798 i M3	36.0000
10450700	Knob FADER RE-AN BLACK 1.2x8mm	10.0000
10450132	Knob Grey-Blck no L mat d9d9d6	10.0000
10450131	Knob Grey-Red+line matt d9d9d6	10.0000
10450130	Knob Grey-black line matd9d9d6	40.0000
10700309	Light pipe KHATOD KSMD04-13	10.0000
10600702	Mains inlet IEC JR-101-1FRSG02	1.0000
10700610	Moer M3	2.0000
10650383	Montagesnoer 1.5mm² (blauw)	25.0000
10650391	Montagesnoer 1.5mm² (bruin)	25.0000
10650387	Montagesnoer 1.5mm² (geel)	25.0000
10650388	Montagesnoer 1.5mm² (groen)	50.0000
10650385	Montagesnoer 1.5mm² (rood)	35.0000
10650386	Montagesnoer 1.5mm² (zwart)	60.0000
10250151	OLED 128x64 0.96 SSD1306 White	10.0000
20851951	PCB ins Auron1 Mic/Line	8.0000
20851960	PCB ins Auron10 ADAPTOR SLOT1	1.0000
20851961	PCB ins Auron11 ADAPTOR SLOT2	1.0000
20851952	PCB ins Auron2 Telco	2.0000
20851954	PCB ins Auron4 Channel Control	5.0000
20851955	PCB ins Auron5 Fader Base	1.0000
20851956	PCB ins Auron6 Power FaderUnit	1.0000
10700603	Parker 2,9x13 verzinkt TORX	30.0000
10700656	Plakvoet 12.7x3.5 zwrt (100x)	4.0000
10700611	Popnagel 3.2x9.5 alugaswaterdi	4.0000
10950073	Power Supply LRS-50-12	1.0000
10700668	Spacer WA-SNSN 11mm d=2.5mm	10.0000
10700975	Tape Tesafix 4970 9mm dubbelz	60.0000
10700787	Taptite M3x6 Torx T10 VERZINKT	13.0000
10700790	Taptite M3x6 verz TORX Blank	6.0000

60881902 AURON 10CH FADERUNIT Motor Fader

Partnumber	Description	Amount
10700129	Adereindhuls ong. 1.50mm/L=7	15.0000
10101807	Auron Venster Oled_p	10.0000
10700786	Bout M 3x5 verzkop/Torx/SILVER	20.0000
10600497	Cable 3 core 3x0.75 black	0.0100
10600498	Cable 3 core Euro 1.5m 3x0.75	1.0000
10600044	Cable AURON DB44 male > female	1.0000
10600070	Cable socket + holder Red M3	1.0000
10600434	Conn flatcable 10p female	20.0000
10600470	Conn flatcable 20p fem ROHS	6.0000
10600132	Conn flatcable 34p female	11.0000
10600139	Conn flatcable 40p female	11.0000
10600187	Conn wired 2pole 8cm Axum MF	10.0000
10600188	Conn wired 4pole 20cm Axum MF	10.0000
10990650	FUSE 1Amp slow 5x20mm 522.517	1.0000
10300084	Fader MOTOR SM100N-B10K-L82TH2	10.0000
10650446	Flatcable 10p r1.27	85.0000
10650448	Flatcable 20p r1.27	60.0000
10650159	Flatcable 34p r1.27	60.0000
10650450	Flatcable 40p r1.27	60.0000
10151951	Frame Auron 10CH FaderUnit_C	1.0000
10101801	Front Auron SLOT1/2 BLIND_c	2.0000
10700625	Kartelring M3 D-6798 i M3	36.0000
10450707	Knob FADER REAN BLACK T-shaft	10.0000
10450132	Knob Grey-Blck no L mat d9d9d6	10.0000
10450131	Knob Grey-Red+line matt d9d9d6	10.0000
10450130	Knob Grey-black line matd9d9d6	40.0000
10700309	Light pipe KHATOD KSMD04-13	10.0000
10600702	Mains inlet IEC JR-101-1FRSG02	1.0000
10700610	Moer M3	2.0000
10650383	Montagesnoer 1.5mm² (blauw)	25.0000
10650391	Montagesnoer 1.5mm² (bruin)	25.0000
10650387	Montagesnoer 1.5mm² (geel)	25.0000
10650388	Montagesnoer 1.5mm² (groen)	50.0000
10650385	Montagesnoer 1.5mm² (rood)	35.0000
10650386	Montagesnoer 1.5mm² (zwart)	60.0000
10250151	OLED 128x64 0.96 SSD1306 White	10.0000
20851951	PCB ins Auron1 Mic/Line	8.0000
20851960	PCB ins Auron10 ADAPTOR SLOT1	1.0000
20851961	PCB ins Auron11 ADAPTOR SLOT2	1.0000
20851952	PCB ins Auron2 Telco	2.0000
20851954	PCB ins Auron4 Channel Control	5.0000
20851955	PCB ins Auron5 Fader Base	1.0000
20851956	PCB ins Auron6 Power FaderUnit	1.0000
10700603	Parker 2,9x13 verzinkt TORX	30.0000
10700656	Plakvoet 12.7x3.5 zwrt (100x)	4.0000
10700611	Popnagel 3.2x9.5 alugaswaterdi	4.0000
10950073	Power Supply LRS-50-12	1.0000
10700668	Spacer WA-SNSN 11mm d=2.5mm	10.0000
10700975	Tape Tesafix 4970 9mm dubbelz	60.0000
10700787	Taptite M3x6 Torx T10 VERZINKT	13.0000
10700790	Taptite M3x6 verz TORX Blank	6.0000

60881903 AURON MASTER UNIT

Partnumber	Description	Amount
10700786	Bout M 3x5 verzkop/Torx/SILVER	4.0000
10600497	Cable 3 core 3x0.75 black	0.0100
10600498	Cable 3 core Euro 1.5m 3x0.75	1.0000
10600051	Cable Auron disp AMUP-CMUP-20c	1.0000
10600052	Cable C2-A2 HDMI Auron disp 20	1.0000
10600171	Conn 3p wired 1=blck/grn/red	1.0000
10600434	Conn flatcable 10p female	2.0000
10600139	Conn flatcable 40p female	5.0000
10600133	Conn flatcable 64p female	4.0000
10650446	Flatcable 10p r1.27	13.0000
10650451	Flatcable 64p r1.27	15.0000
10151952	Frame Auron MasterUnit_C	1.0000
10500005	Ins.sleeve 5.0mm round (grey)	35.0000
10600432	Jack chassis break	1.0000
10700625	Kartelring M3 D-6798 i M3	26.0000
10450132	Knob Grey-Blck no L mat d9d9d6	4.0000
10450130	Knob Grey-black line matd9d9d6	4.0000
10250128	LCD 7" Module 1024x600 CT AURO	1.0000
10600702	Mains inlet IEC JR-101-1FRSG02	1.0000
10700610	Moer M3	8.0000
10650371	Montagesnoer 0,4 mm² (rood)	35.0000
10650372	Montagesnoer 0,44 mm² (zwart)	35.0000
20851962	PCB ins Auron12 Master RIGHT	1.0000
20851963	PCB ins Auron13 Master LEFT	1.0000
20851964	PCB ins Auron14 Master Engine	1.0000
20851965	PCB ins Auron15 Master AES3OUT	1.0000
20851966	PCB ins Auron16 Master UI	1.0000
20851968	PCB ins Auron18 Master DB44	1.0000
10700603	Parker 2,9x13 verzinkt TORX	7.0000
10700656	Plakvoet 12.7x3.5 zwrt (100x)	4.0000
10700611	Popnagel 3.2x9.5 alugaswaterdi	17.0000
10950068	Power Supply LRS-35-12 WEBSTAT	1.0000
10500682	Shrinksleeve 6.4>3.2 black	30.0000
10700787	Taptite M3x6 Torx T10 VERZINKT	30.0000
10700790	Taptite M3x6 verz TORX Blank	6.0000

Feels good does more

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