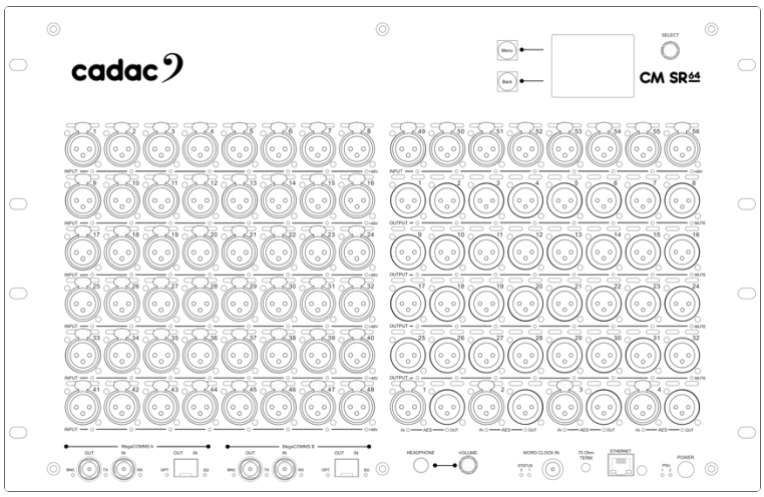
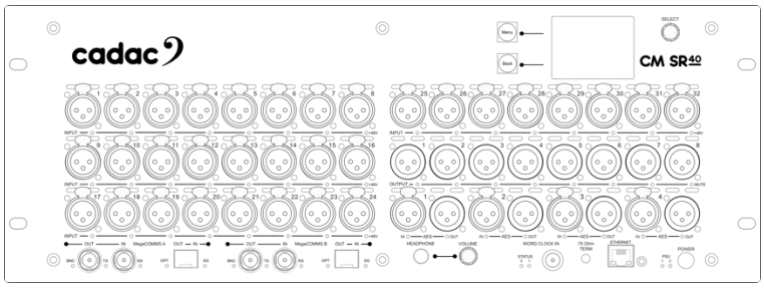
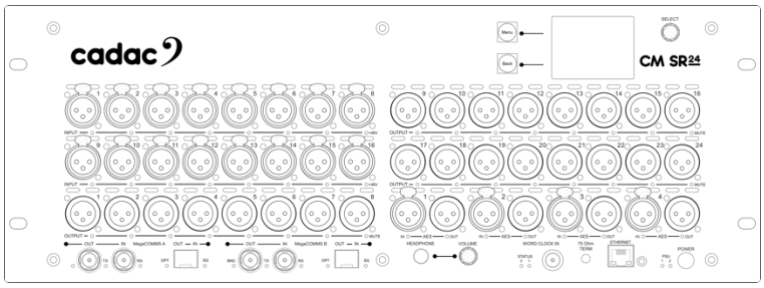
series

Cadac Remote Stage Racks







CM-SR64 CM-SR40 CM-SR24

Hardware Overview

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Important Safety Information

CAUTION: These servicing instructions are for use by qualified personnel only. To reduce the risk of electric shock, do not perform any servicing other than that contained in the User Manual unless you are qualified to do so. Refer all servicing to qualified service personnel.

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water. Do not expose this apparatus to dripping or splashing and ensure that no objects filled with liquids, such as vases, are placed on this apparatus.
6. Clean only with a dry cloth.
7. Do not block any of the ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus that produce heat.
9. Only use attachments/accessories specified by the manufacturer.
10. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as the power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
11. To completely disconnect mains power from this apparatus, the power supply cord must be unplugged.

For US and CANADA Only

Do not defeat the safety purpose of the grounding-type plug. A grounding-type plug has two blades and a third grounding prong. The wide blade or the third prong is provided for your safety. When the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.

The lightning flash with arrowhead symbol, within an equilateral triangle is intended to alert the user to the presence of an uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

General Precautions

- Do not place heavy objects on the stage rack, expose it to sharp objects or handle the stage rack in any way that may cause damage, e.g., rough handling and /or excessive vibration.

- Do not subject the equipment to dirt, dust, heat or vibration during operation or storage. Never expose the stage rack to rain or moisture in any form. Should the stage rack become wet, turn it off and disconnect it from the mains without further delay. The stage rack should be given sufficient time to dry out before recommencing operation.

- When cleaning the stage rack, never use chemicals, abrasive substances or solvents.

- The stage rack control screen should be cleaned using a soft brush and a dry lint-free cloth. For persistent marks, use a soft cloth and isopropyl alcohol. Switches and potentiometers do NOT require cleaning or lubrication.

- Keep these instructions for future reference. Follow all warnings in this manual and those printed on the console.

- The stage rack must be connected following the guidance in this manual. Never connect power amplifier outputs directly to the stage rack. Connectors and plugs must never be used for any other purpose than that for which they are intended.

- The stage rack mains input must always be connected to correctly rated mains power as referred to in this manual. The mains input must, at all times, be connected to the local mains power supply using the supplied power cord. In cases where the supplied plug does not fit, a qualified electrician must be consulted.

- The power cord must be routed in such a way that the risks of accidentally stepping on it, stretching it or it being pinched are minimized.

- WARNING! THIS EQUIPMENT MUST BE EARTHED!

- Ventilation slots must never be covered or obstructed in any way, otherwise airflow required for safe operation may be restricted. Where the stage rack is to be operated in a flight-case, then this must be located in such a way that it allows for proper ventilation.

- Refer servicing to qualified technical personnel only.

Declarations of Conformity

The following pages show the individual declarations of conformity, for both the CE and UKCA marks, for the Cadac CM-SR24, CM-SR40 and CM-SR64 stage racks.

UKCA Declaration of Conformity (DoC)

CM-SR Series

We, SCC Audio Limited, of 1 New Street, Luton, Bedfordshire, LU1 5DX declare under our sole responsibility that the **Cadac CM-SR24** stage rack, as detailed below complies with the provisions of the following UKCA Directives and is eligible to bear the UKCA mark:

Product Type Number	Product Description	Serial number
Cadac CM-SR24	Stage Rack	

Object of the declaration:

The Cadac CM-SR24 is 4U fixed configuration self-powered stage rack, featuring 16 Cadac mic-amps and 24 analogue outputs plus 8 AES3 inputs and 8 AES3 outputs. A 2.4" colour TFT displays the unit's menu structure along with an integrated headphone amp for local monitoring. The CM-SR24 connects to the console using Cadac's MegaCOMMS network protocol via coax cable or optical fibre.

Assurance of conformance of the described product with the provisions of the stated UK Regulation is given through compliance to the following standards:

EMC Directive:	**2014/30/EU**
Low Voltage Directive:	**2014/35/EU**

The following harmonised standards and technical specifications have been applied:

Electrical Safety (LVD):	**EN 62368-1:2014/AC:2015**
Electromagnetic Compatibility:	**EN55032:2015** **EN55013:2013+A1:2016** **EN61000-3-2:2019** **EN61000-3-3:2013 + A1. 2019** **EN61000-4-2:2009** **EN61000-6-2:2019** **EN55035:2017/A11:2020**

Our representative in the UK is SCC Audio Limited, located at 1 New Street, Luton, Bedfordshire, LU1 5DX.

Note: The EMC performance of a system component will be affected by the final installation, compliance to the stated EMC standards and conformance to the EMC Directive must be confirmed after installation by the final equipment installer. For guidance with respect to test conditions please visit our website at https://cadac-sound.com, or contact your local CADAC representative.

Signed for on behalf of:

Name of Authorised Signatory	Emily Watson
Signature of Authorised Signatory	
Position of Authorised Signatory	Head of R&D Cadac
Date	21st October 2022
Date when first CE marked	21st September 2022
Place where signed	Luton, UK

EU Declaration of Conformity (DoC)

CM-SR Series

We, SCC Audio Limited, of 1 New Street, Luton, Bedfordshire, LU1 5DX declare under our sole responsibility that the **Cadac CM-SR24** stage rack, as detailed below complies with the provisions of the following European Directives and is eligible to bear the CE mark:

Product Type Number	Product Description	Serial number
Cadac CM-SR24	Stage Rack	

Object of the declaration:

The Cadac CM-SR24 is 4U fixed configuration self-powered stage rack, featuring 16 Cadac mic-amps and 24 analogue outputs plus 8 AES3 inputs and 8 AES3 outputs. A 2.4" colour TFT displays the unit's menu structure along with an integrated headphone amp for local monitoring. The CM-SR24 connects to the console using Cadac's MegaCOMMS network protocol via coax cable or optical fibre.

Assurance of conformance of the described product with the provisions of the stated EC Directive is given through compliance to the following standards:

EMC Directive:	**2014/30/EU**
Low Voltage Directive:	**2014/35/EU**

The following harmonised standards and technical specifications have been applied:

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UKCA Declaration of Conformity (DoC)

CM-SR Series

We, SCC Audio Limited, of 1 New Street, Luton, Bedfordshire, LU1 5DX declare under our sole responsibility that the **Cadac CM-SR40** stage rack, as detailed below complies with the provisions of the following UKCA Directives and is eligible to bear the UKCA mark:

Product Type Number	Product Description	Serial number
Cadac CM-SR40	Stage Rack	

Object of the declaration:

The Cadac CM-SR40 is 4U fixed configuration self-powered stage rack, featuring 32 Cadac mic-amps and 8 analogue outputs plus 8 AES3 inputs and 8 AES3 outputs. A 2.4" colour TFT displays the unit's menu structure along with an integrated headphone amp for local monitoring. The CM-SR40 connects to the console using Cadac's MegaCOMMS network protocol via coax cable or optical fibre.

Assurance of conformance of the described product with the provisions of the stated UK Regulation is given through compliance to the following standards:

EMC Directive:	**2014/30/EU**
Low Voltage Directive:	**2014/35/EU**

The following harmonised standards and technical specifications have been applied:

Electrical Safety (LVD):	**EN 62368-1:2014/AC:2015**
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Our representative in the UK is SCC Audio Limited, located at 1 New Street, Luton, Bedfordshire, LU1 5DX.

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Date when first CE marked	21st September 2022
Place where signed	Luton, UK

EU Declaration of Conformity (DoC)

CM-SR Series

We, SCC Audio Limited, of 1 New Street, Luton, Bedfordshire, LU1 5DX declare under our sole responsibility that the **Cadac CM-SR40** stage rack, as detailed below complies with the provisions of the following European Directives and is eligible to bear the CE mark:

Product Type Number	Product Description	Serial number
Cadac CM-SR40	Stage Rack	

Object of the declaration:

The Cadac CM-SR40 is 4U fixed configuration self-powered stage rack, featuring 32 Cadac mic-amps and 8 analogue outputs plus 8 AES3 inputs and 8 AES3 outputs. A 2.4" colour TFT displays the unit's menu structure along with an integrated headphone amp for local monitoring. The CM-SR40 connects to the console using Cadac's MegaCOMMS network protocol via coax cable or optical fibre.

Assurance of conformance of the described product with the provisions of the stated EC Directive is given through compliance to the following standards:

EMC Directive:	**2014/30/EU**
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Date when first CE marked	21st September 2022
Place where signed	Luton, UK

UKCA Declaration of Conformity (DoC)

CM-SR Series

We, SCC Audio Limited, of 1 New Street, Luton, Bedfordshire, LU1 5DX declare under our sole responsibility that the **Cadac CM-SR64** stage rack, as detailed below complies with the provisions of the following UKCA Directives and is eligible to bear the UKCA mark:

Product Type Number	Product Description	Serial number
Cadac CM-SR64	Stage Rack	

Object of the declaration:

The Cadac CM-SR64 is 7U fixed configuration self-powered stage rack, featuring 56 Cadac mic-amps and 32 analogue outputs plus 8 AES3 inputs and 8 AES3 outputs. A 2.4" colour TFT displays the unit's menu structure along with an integrated headphone amp for local monitoring. The CM-SR64 connects to the console using Cadac's MegaCOMMS network protocol via coax cable or optical fibre.

Assurance of conformance of the described product with the provisions of the stated UK Regulation is given through compliance to the following standards:

EMC Directive:	**2014/30/EU**
Low Voltage Directive:	**2014/35/EU**

The following harmonised standards and technical specifications have been applied:

Electrical Safety (LVD):	**EN 62368-1:2014/AC:2015**
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Our representative in the UK is SCC Audio Limited, located at 1 New Street, Luton, Bedfordshire, LU1 5DX.

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Date	21st October 2022
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Place where signed	Luton, UK

EU Declaration of Conformity (DoC)

CM-SR Series

We, SCC Audio Limited, of 1 New Street, Luton, Bedfordshire, LU1 5DX declare under our sole responsibility that the **Cadac CM-SR64** stage rack, as detailed below complies with the provisions of the following European Directives and is eligible to bear the CE mark:

Product Type Number	Product Description	Serial number
Cadac CM-SR64	Stage Rack	

Object of the declaration:

The Cadac CM-SR64 is 7U fixed configuration self-powered stage rack, featuring 56 Cadac mic-amps and 32 analogue outputs plus 8 AES3 inputs and 8 AES3 outputs. A 2.4" colour TFT displays the unit's menu structure along with an integrated headphone amp for local monitoring. The CM-SR64 connects to the console using Cadac's MegaCOMMS network protocol via coax cable or optical fibre.

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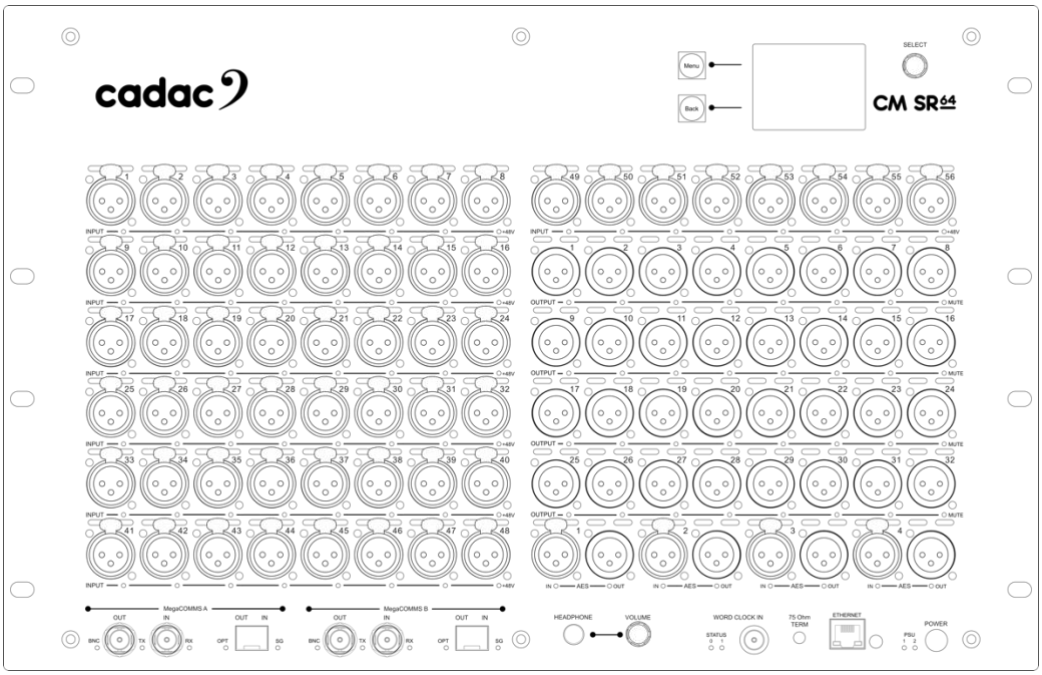
Position of Authorised Signatory	Head of R&D Cadac
Date	21st October 2022
Date when first CE marked	21st September 2022
Place where signed	Luton, UK

Introduction

Thank you for purchasing the Cadac CM-SR stage rack.



From its founding in 1968, Cadac's products have become the benchmark for audio mixing consoles. The CM Series continues this tradition with a live performance digital audio system benefiting from Cadac's innovative and acclaimed user interface, superlative audio quality and industry leading low latency infrastructure.

It expands the audio performance and features, developed over a 50-year period of innovation within large-scale theatre and touring analogue desks, and puts them within a compact, fixed-architecture digital system, featuring a "high-agility" user interface utilising a wide format touch screen. Professional sound engineers familiar with other digital consoles will find the transition to the Cadac workflow quick and intuitive.

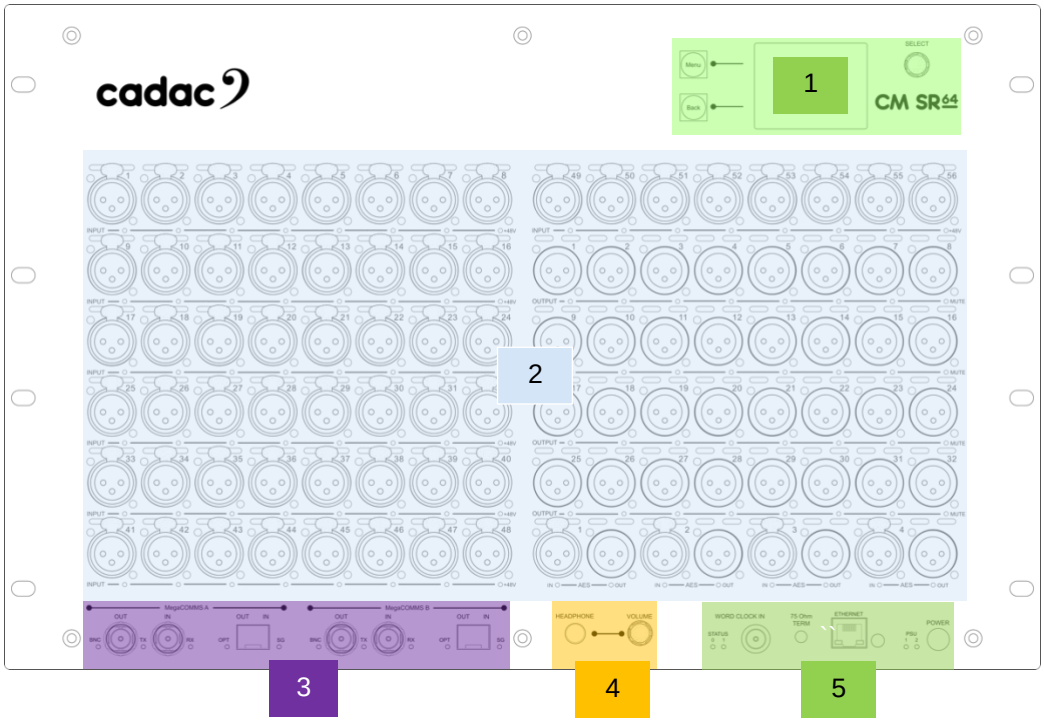
Cadac's attention to detail and high-quality audio circuitry remains at the core of Cadac's CM Series design philosophy.

Surface Overview

The Cadac CM-SR range of stage racks are used as part of a larger audio system made up of multiple units: control surface and remote MegaCOMMS I/O device(s). The CM-SR stage racks include analogue and digital inputs and outputs that provide remote I/O capability for Cadac CM-Series of audio mixing consoles.

Front Panel Controls

The front panel is divided in five operational areas (the illustration below uses the CM-SR64 as the example, all other racks follow a similar layout):



1. **Control Screen**: 2.4-inch (240 x 320 pixel) colour display, with two navigation buttons and a rotary encoder mounted to the left and right of the screen respectively.

2. **XLRs**: Analogue and digital inputs and outputs on XLRs (the number of inputs and outputs varies depending on the size of stage rack).

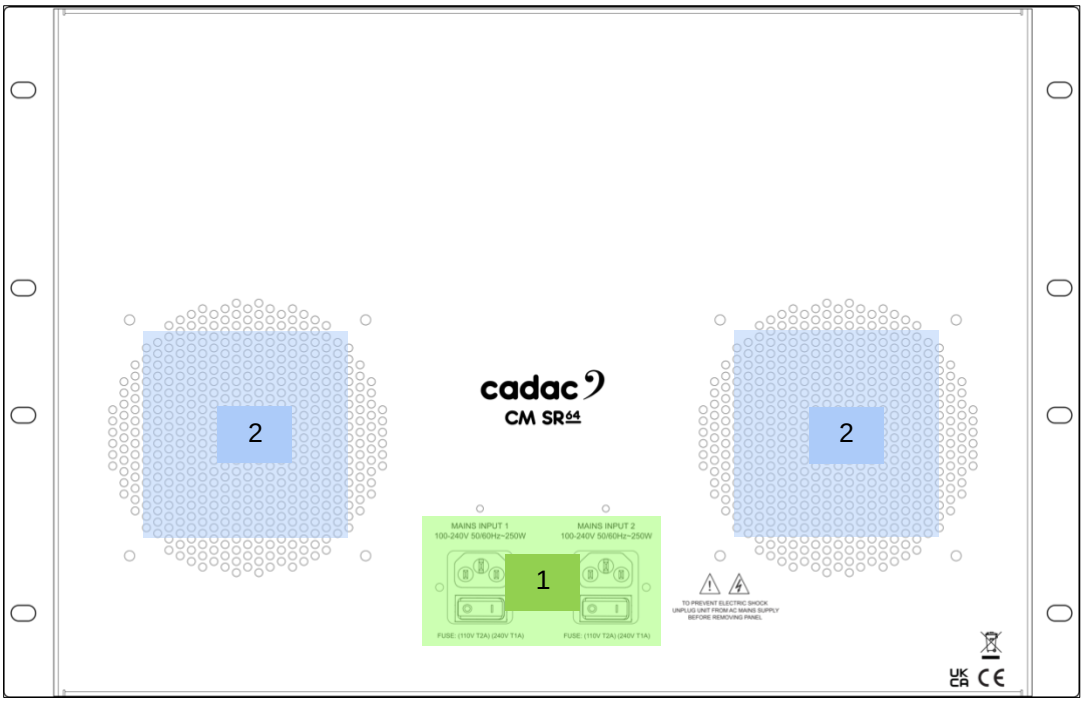
3. **MegaCOMMS**: MegaCOMMS audio interconnections available on two pairs of BNC connections or via LC optical ports.

4. **Headphone Monitoring**: ¼" stereo jack along with a volume attenuator.

5. **POWER and Word Clock**: Word clock BNC, Ethernet port and the ON/OFF switch.

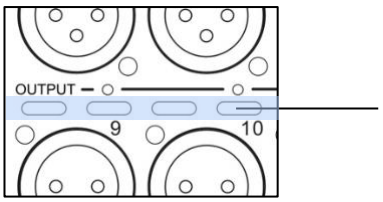
Rear Panel

The only connections that are not on the front panel are the power connections for the dual internal, auto switching, power supplies. The connectors accept the standard and locking IEC cables.



1. **PSU connectors**: The dual internal PSUs have an input range of 100-240 V AC~50-60Hz, the output requirements are +17 V, -17 V, +12 V, with a front mounted power switch. The unit is designed to run off one PSU, however it is recommended that the unit is run on both PSUs to ensure optimum load and heat management plus adds PSU redundancy.

2. **Fans**: For internal cooling; do not block. Two low noise variable flow fans ensure optimal internal ambient temperature. Air is drawn in and expelled through the front panel via ventilation slots above each XLR and via vents holes on both sides of the unit.



For further details of the control surface please see section: Stage rack Overview: Front Panel

Shipping Details

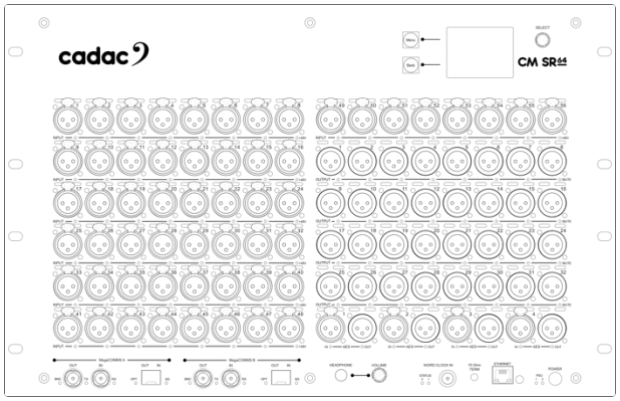
The stage rack is shipped in a carboard box with the following additional items:

- 2 x IEC locking power cables

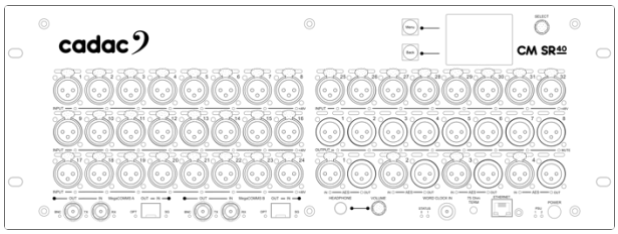
Remote Stage Racks I/O Units

The following versions of remote stage racks are available:

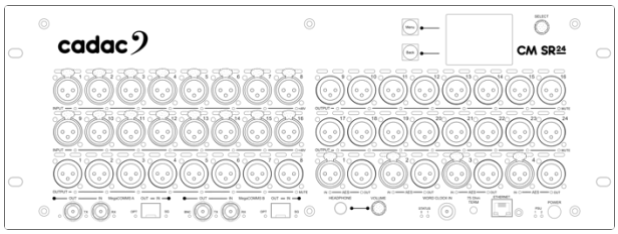
- CM-SR64: 7U unit: 56 mic / line inputs and 32 balanced line outputs, 8 AES3 inputs / outputs



- CM-SR40: 4U unit: 32 mic / line inputs and 8 balanced line outputs, 8 AES3 inputs / outputs



- CM-SR24: 4U unit: 16 mic / line inputs and 24 balanced line outputs, 8 AES3 inputs / outputs



Up to two MegaCOMMS remote I/O devices can be connected directly to the console.

In addition to the I/O provided by the stage racks, the CM-J50 is also configured with sixteen analogue mic/line inputs, eight analogue line outputs (all balanced), four balanced AES/EBU inputs and four balanced AES/EBU outputs. The routing of the I/O is configured via the console's software.

Stage Rack Overview

The CM-SR40, CM-SR24 and CM-SR64 are the first in a series of Cadac stage racks designed for the CM Series of consoles.

The CM-SR40 unit is configured with 32 analogue inputs and 8 analogue outputs. The CM-SR24 has 16 analogue inputs and 24 analogue outputs, the CM-SR64 56 analogue inputs and 32 analogue outputs. All three units feature 8 AES3 inputs and 8 AES3 outputs on a total of 8 XLRs.

All analogue audio inputs and outputs are tolerant of 48 V connection and are short circuit protected. All the units are specified with Neutrik™ XLR connectors.

The units feature a 2.4” colour display, which, in conjunction with the two surrounding buttons and encoder, allows the adjustment of the incoming levels, Mic gain and phantom power settings. Plus, it provides straightforward selection of the unit’s ID number, plus general unit settings and maintenance tools.

The integrated headphone amp (with a volume attenuator) allows the monitoring of both the inputs and outputs and adjustment locally to the gain via the menu attenuator.

All the units feature dual MegaCOMMS ports on the front panel for redundant connection to the console. Alongside the MegaCOMMS BNC ports are redundant duplex optical LC ports for connection runs of up to 2km and allowing easier integration into installations where the network back bone is optical.

NOTE: The optical transceivers are **NOT** supplied and compatible 1000BASE-LX/LH SFP 1310nm 10km DOM Duplex LC MMF/SMF transceiver modules will have to be purchased from a third party.

All three stage racks come as standard with redundant auto switching internal PSUs. The units are cooled via two low noise internal constant flow fans.

MegaCOMMS Protocol

Communication between the stage racks and the control surface is via a proprietary Cadac high speed protocol called MegaCOMMS. The protocol uses high-speed 75 ohm coaxial cable terminated in BNC connectors or depending on the unit, via fibre optic cable using the duplex optical LC ports.

MegaCOMMS is a robust, TDM (time division multiplex) system. Control data is embedded within the data stream, so that no audio channels are sacrificed for this purpose. The high bandwidth available means that the current implementation of MegaCOMMS can carry 128 channels of 24-bit, 96 kHz audio, plus control data, plus clock, bi-directionally, up to 100 metres (328 ft) via a pair of RG-6 coaxial cables and up to 2km (1.24 miles) via single mode fibre on optical.

In addition to audio and control data, MegaCOMMS provides for accurate, phase-aligned clock distribution, by embedding timing markers in the data stream. This allows reliable, low-jitter synchronisation of all hardware elements within a network.

The simplest implementation of a MegaCOMMS network is the straightforward console-stage rack configuration. In this application, the console provides the clock and the stage rack synchronises itself once the connections are made.

Total through-system propagation delay for this system, including all console processing and A-D / D-A conversions, is an astonishing 37 samples (@ 96 kHz), or just under 400us. This compares with the many millisecond propagation delays usually found in most other similar systems.

Two interconnection paths are provided, A and B, each of which requires a transmit and receive cable. The maximum capacity of each path is 128 audio channels in each direction.

Stage Rack Features

Individual stage racks have:

- CM-SR64 has in 7U:
    - 56 mic / line inputs on XLRs
    - 32 balanced line outputs on XLRs
    - 8 AES3 inputs and outputs on 4 balanced XLRs

- CM-SR40 has in 4U:
    - 32 mic / line inputs on XLRs
    - 8 balanced line outputs on XLRs
    - 8 AES3 inputs and outputs on 4 balanced XLRs

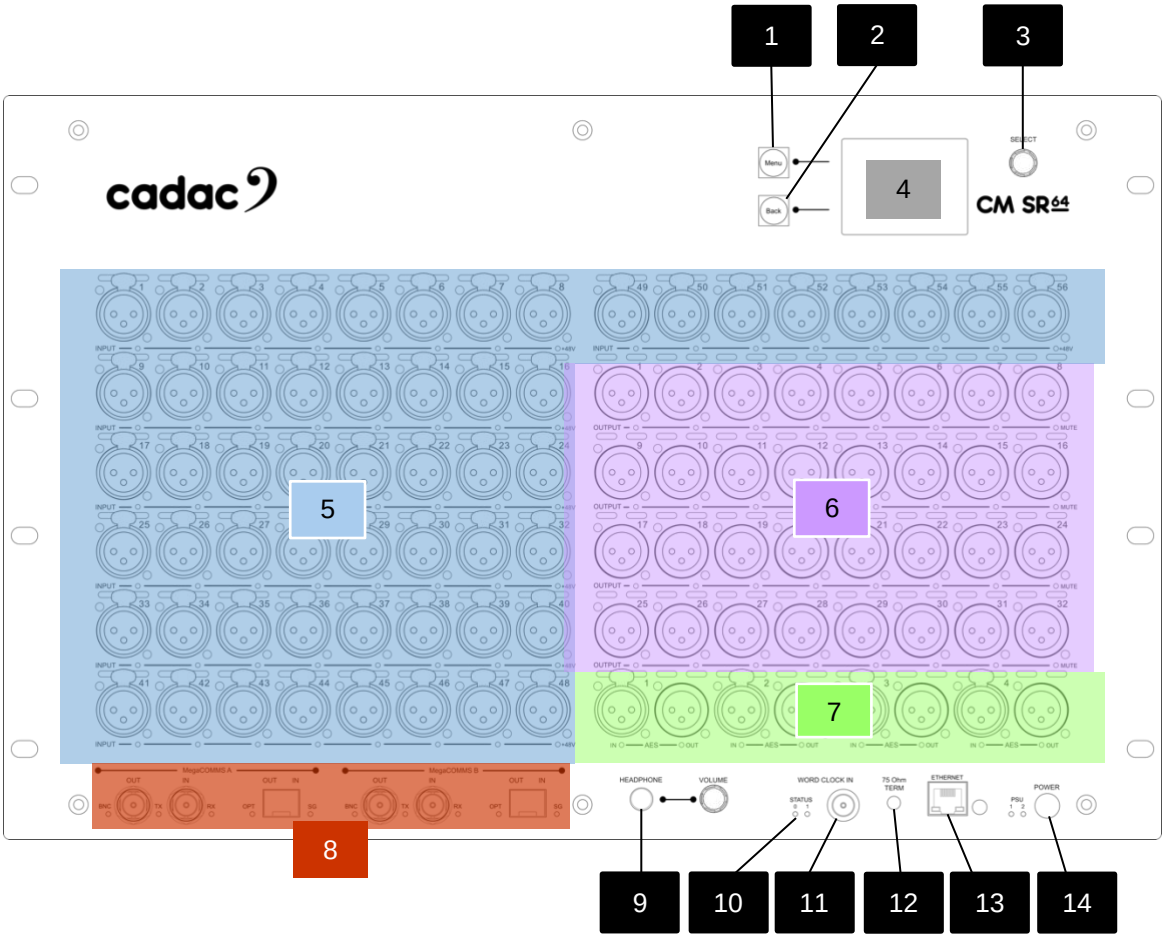
- CM-SR24 has in 4U:
    - 16 mic / line inputs on XLRs
    - 24 balanced line outputs on XLRs
    - 8 AES3 inputs and outputs on 4 balanced XLRs

All stage racks have:

- MegaCOMMS audio protocol available on:
    - 4 x RG6 BNCs
    - 2 x LC optical transceiver SFP ports
- 2.4 inch, (240 x 320 pixel), colour display
- Menu controls via 2 push buttons and encoder with push function
- 96 kHz, 24-bit Delta-Sigma A/D and D/A converters
- Low-noise, wide dynamic-range analogue mic pre-amps with remote and local gain control
- ¼” stereo jack along with a volume attenuator
- Word Clock connector
- Ethernet port
- Front panel power switch

CM-SR Stage Rack Hardware Controls

Front Panel



1. **MENU button**: Brings up the **Main Menu** screen on the control screen.

2. **BACK button**: Returns the user one level up from the currently display menu screen.

3. **Rotary encoder with push function**: Is used to navigate the menu structure displayed on the control screen [3]. The encoder has turn and a press function. There are two rotatory modes:

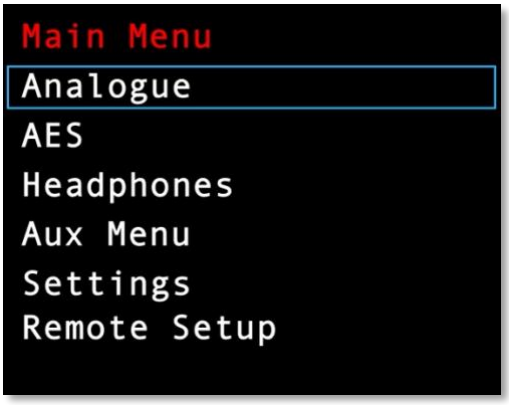
    a. **Function select mode**: Turning the encoder scrolls through the menu structure
    b. **Adjust Mode**: Once in a specific function further turning of the encoder changes the parameter – e.g., gain levels or channel number

    The push, or switch, function:

    a. **The push function**: When the encoder is pushed it acts as a switch to select a function or the highlight parameter selected by turning the encoder

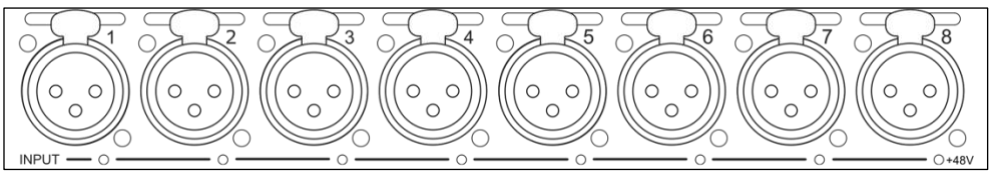
4. **Menu Screen:** The 2.4-inch colour display shows the stage rack control menu structure. Navigation is done via the **Menu** button [1] and **Back** button [2] and the rotatory encoder [3].

1: The default screen display as the unit powers up



2: After start-up the main menu appears.
Page title in red and selectable options in white, the blue box highlights the selected function

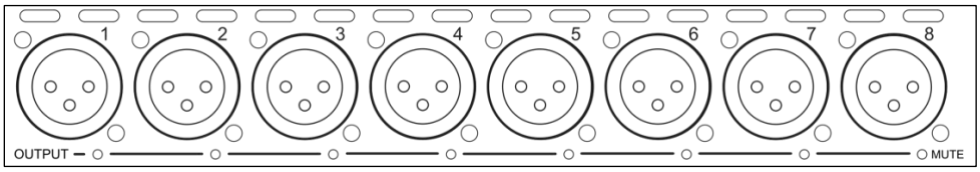
5. **Inputs:** Between 16 to 56 balanced analogue audio inputs populate the stage racks on XLR female sockets. These may be the sources for any input channel or insert return in the same way as the console's inputs. They may be used for connection of FOH sound sources, FX processing, talkback mic, etc. Characteristics are identical to the inputs on the console.



3: Analogue Inputs on female XLR sockets

   a. **48 V LEDs:** Each analogue input connector has an adjacent red LED. This illuminates when 48 V phantom power is enabled at the associated input connector.

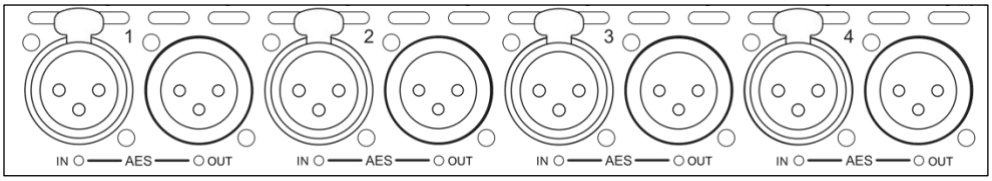
6. **Outputs:** Between 8 to 32 balanced analogue audio outputs populate the stage racks, on XLR male sockets. Any output channel, insert send or direct out, may be routed to these. Characteristics are identical to the console.



4: Analogue Outputs on male XLRs

b. **MUTE LEDs**: Each analogue output connector has an adjacent red LED. This illuminates when the physical output is ‘hard’ muted by the internal relay, either during power-up, when the MUTE ALL button is pressed, or if a ‘hard’ mute is applied to an output from a channel ON button.

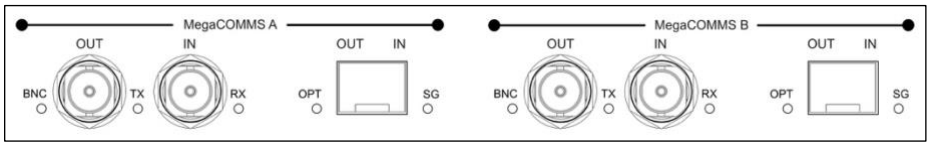
7. **AES IN 1 to 4 and OUT 1 to 4**: Four female XLR sockets providing eight AES3 format digital inputs populate the stage racks. The inputs are fitted with Sample Rate Converters (SRCs) and will accept sample rates between 44.1 and 192 kHz. The stage rack’s internal clock frequency is 96 kHz. Four male XLR connectors providing eight AES3 format digital outputs.



5: AES3 digital inputs and outputs on male and female XLRs

c. **Status LEDs**: Eight RGB (multi-colour) LEDs are fitted to the card. On the inputs the LED will illuminate Green to confirm the presence of a valid AES3 input signal. If there is no valid clock it will turn Red. For the outputs, if there is a valid internal sample rate the output LED will illuminate Yellow for 44.1 kHz, Magenta for 48 kHz and Cyan for 96 kHz. If there is an external clock, then the output LED will remain Off.

8. **MegaCOMMS**: 4 x RG6 BNC connectors - in 2 pairs – and two duplex optical LC ports carrying all audio and control data between the control surface and other MegaCOMMS devices, such as stage racks and network bridges.



6: 2 x MegaCOMMS ports on BNC RG6 coaxial and LC optical transceiver SFP ports

   a. **Status LEDs**: The LEDs provide indication of whether the BNC or optical connections are active, along with the TX and RX status.

9. **Headphones**: One ¼" stereo port is fitted to the front panel for the stage rack's headphones output, along with a volume attenuator.

10. **LEDs:** Reserved for service self-test modes

11. **Word Clock IN:** A TTL level (0 to +5 V) clock signal applied here can be selected to synchronise the AES outputs.

12. **75 ohm switch**: The recessed switch is the input termination for the Word Clock. When pressed the impedance is set at 75 ohm for use with 75 ohm coax cable.

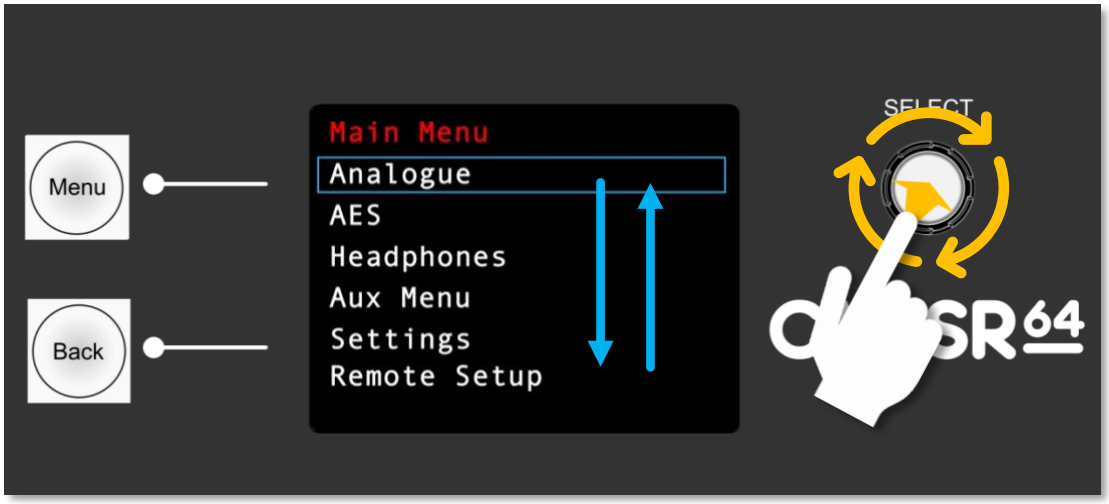
13. **Network**: RJ45 Ethernet ports for updating the unit's firmware and potential remote control of the unit. This a standard PC network Gigabit Ethernet port.

14. **Power Switch and PSU indicators**: The power switch turns on the power to the unit. To the right of the switch is the ON status of each of the two internal power supplies.

Menu Structure

Main Menu

After start-up, the **Main Menu** appears on the screen:



7: Main Menu structure

The page title appears in red. The selectable items – in white - can be cycled through using the rotatory encoder [3] with the current function highlighted within the blue rectangle. When the required function is highlighted it is selected by using the push function of the rotatory encoder [3]. Once selected the turn function will scroll through any options for that function.

The current functions are:

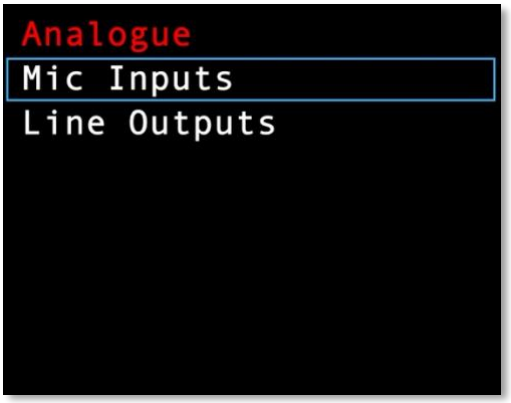
Analogue	selects the **Analogue Inputs and Outputs Sub Menu**
AES	selects the **AES Sub Menu**
Headphones	selects the **Headphones Sub Menu**
Aux Menu	selects the **Aux Sub Menu**
Settings	selects the **Settings Sub Menu**
Remote Setup	selects the **Remote Setup Sub Menu**

Depending on item selected, the user is taken to a further sub menu for adjustment of selected parameter.

NOTE: Analogue and AES menus will only allow changes of port parameters when the stage rack is in **Rack Mode**. In **Console Mode** all stage rack port parameters are controlled from the console.

Analogue Sub Menu

When selected the **Analogue Sub Menu** appears on the screen:



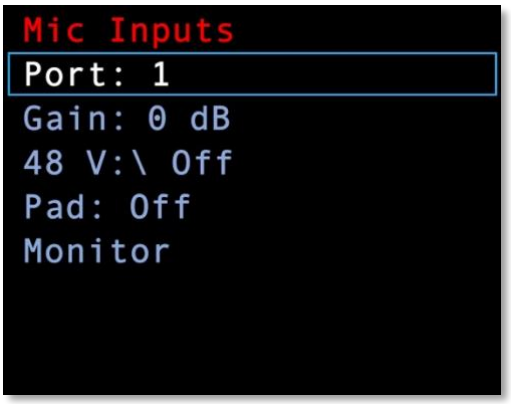
8: Analogue sub menu

By using the rotatory encoder [3] the **Inputs** or **Outputs** sub menu can be highlighted and by using the push function of the rotatory encoder [3] they can be selected. Once selected the turn function will scroll through any options for that function.

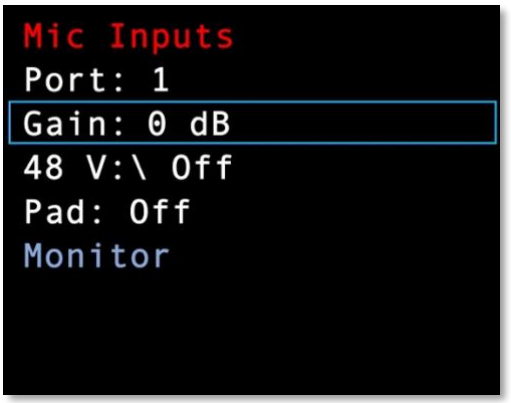
This will bring up the individual menus for the Inputs or Outputs on the stage rack, which are shown over the following pages.

Mic Inputs

When selected the **Mic Input Menu** appears on the screen and allows the setup of the Mic Inputs:



9: Input port selection.
The lines in pale blue are non-selectable within the option selected.



10: Shows selectable functions in white

Selectable controls

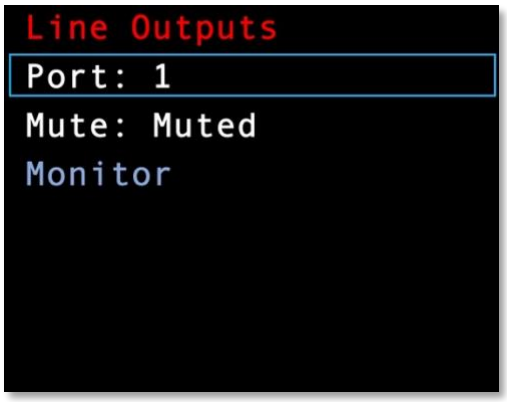
Port	activates input port selection, any from **1** to **56** *
Gain	activates gain value selection, 0 to 64 in **0.5 dBs increments**
48 V	activates 48 V selection, which can be toggled **On** or **Off** for the active port
Pad	activates pad selection, which can be toggled **On** or **Off** for the active port
Monitor	causes the active port to be routed to the headphones. Depending on Mono or Stereo selection in the headphone menu, either **Monitor** or **L Monitor / R Monitor** will appear on the screen.

Selection applied and the values stored are used against each channel.

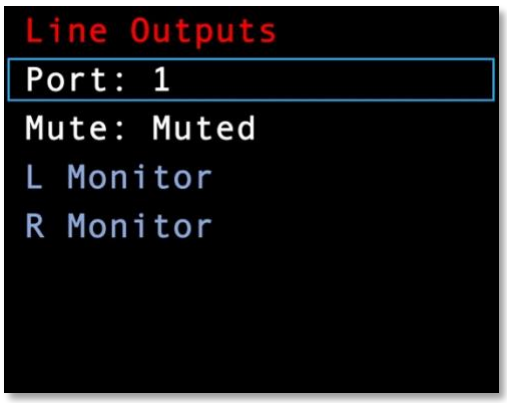
NOTE: * Value depends on rack type, 56 for CM-SR64, 32 for SR40 and 16 for SR24. Be aware that port numbers do not match the console view of the stage rack port assignments, these are defined in Appendix “Socket / Port Mappings against Physical Port Positions”.

Outputs

When selected the **Output Menu** appears on the screen and allows the setup of the outputs:



11: Output port selection



12: Shows selectable functions in white.
The lines in pale blue are non-selectable within the option selected.

By using the rotatory encoder [3] the functions can be highlighted and by using the push function of the rotatory encoder [3] they can be selected.

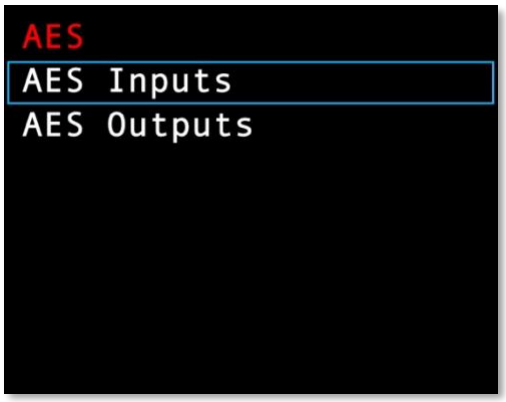
Selectable controls

Port	activates input port selection, any from **1** to **32** *
Mute	activates **Mute**, which can be toggled between **Muted** and **UnMuted** for the active port
Monitor	causes the active port to be routed to the headphones. Depending on Mono or Stereo selection in the headphone menu, either **Monitor** or **L Monitor / R Monitor** will appear on the screen.

Selection applied and the values stored are used against each channel.
NOTE: * Value depends on rack type, 32 for CM-SR64, 8 for SR40 and 24 for SR24. Be aware that port numbers **do not match** the console view of the stage rack port assignments, these are defined in Appendix “Socket / Port Mappings against Physical Port Positions”.

AES Sub Menu

When selected the **AES Sub Menu** appears on the screen:

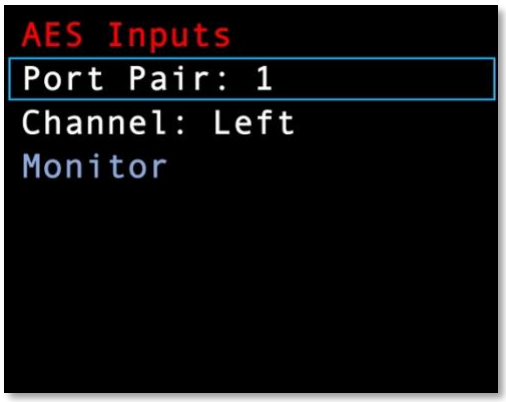


13: AES sub menu

By using the rotatory encoder [3] the **Inputs** or **Outputs** sub menu can be highlighted and by using the push function of the rotatory encoder [3] they can be selected. Once selected the turn function will scroll through any options for that function.

This will bring up the individual menus for the AES Inputs or Outputs on the stage rack.

AES Inputs



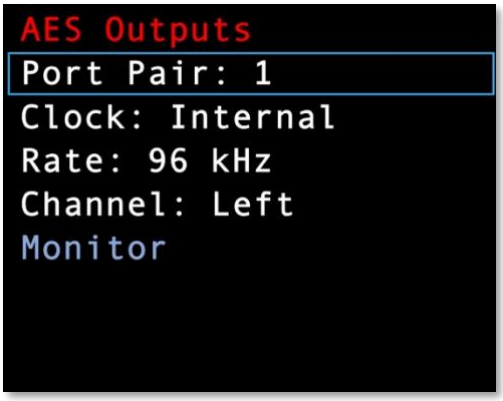
14: AES Inputs menu

Selectable controls

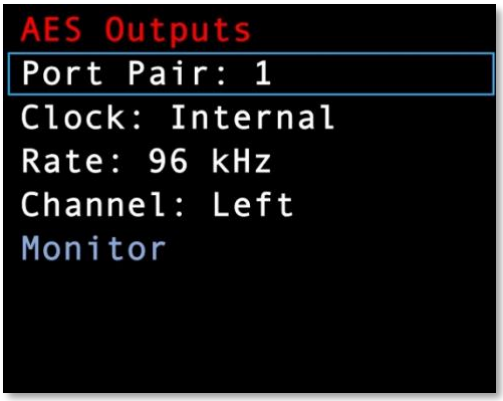
Port Pair	activates **AES** pair 1, 2, 3 or 4
Channel	selection between left and right of active input/output pair
Monitor	selection of this causes the active port to be routed to the headphones. Depending on Mono or Stereo selection in the headphone menu, either **Monitor** or **L Monitor** or **R Monitor** will appear on the screen.

Selection applied and the values stored are used against each channel.

AES Outputs



15: AES output menu



16: AES output menu

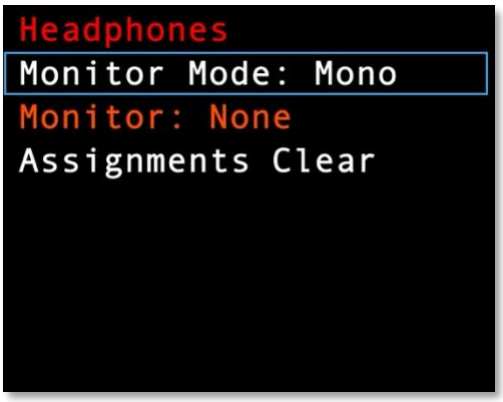
Selectable controls

Port Pair	activates **AES** pair 1, 2, 3 or 4
Clock	selects either **Internal** where the default clock rate is 96 kHz or **External** clocks the SR rack to an external clock
Rate	**Internal clock** is **96 kHz** when External clock is selected then this becomes greyed out
Channel	selection between left and right of active input/output pair
Monitor	selection of this causes the active port to be routed to the headphones. Depending on Mono or Stereo selection in the headphone menu, either **Monitor** or **L Monitor** or **R Monitor** will appear on the screen.

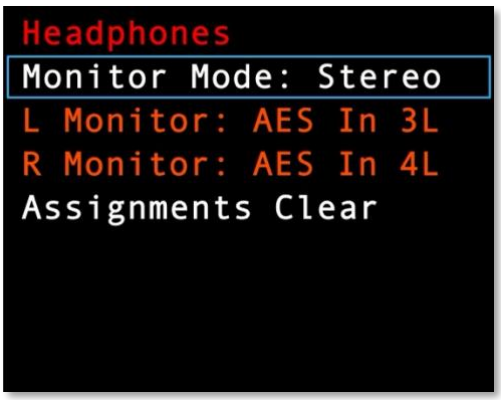
Selection applied and the values stored are used against each channel.

Headphones Sub Menu

When selected the **Headphones Menu** appears on the screen:



17: Headphone Mono mode selection



18: Headphone Stereo mode selection

Selectable controls

Monitor Mode	activates selection between **Mono** or **Stereo** **Mono:** One monitor button appears on the analogue menus, selection made to monitor will be fed to the Left and Right channels of headphone output **Stereo:** Two buttons appear on the analogue menus to allow any port to be selected for headphone **Left** and **Right**
Assignments Clear	clears ALL headphone assignments

Selection applied and the values stored are used against each channel.

None-selectable Overview

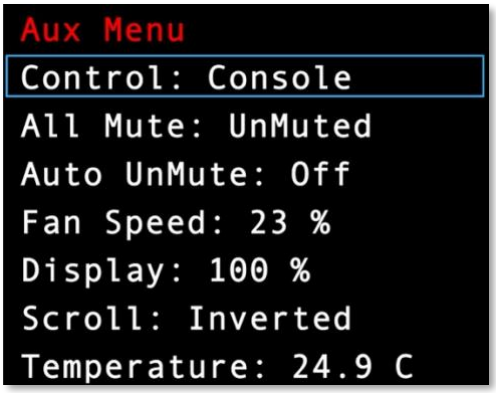
L / R Monitor	shows the current active assignments

The lines highlighted in red indicate that they are relaying information and cannot be selected (or have the option of being selected) from the menu.

NOTE: AES inputs default as stereo pairs for selection to drive headphone Left and Right.

Aux Sub Menu

By using the rotatory encoder [3] you can scroll up or down the sub menu. Once the desired function is highlighted the push function of the rotatory encoder [3] will select the function and then the turn function will scroll through the options.



19: Aux menu

Selectable controls

Control	switches control of the unit between the **Console** or **Local** (the SR unit itself)
All Mute	all the mutes on the unit can be **Muted** or **UnMuted** globally
Auto Unmute	selects whether auto un-mute is **On** or **Off.** Auto Unmute will unmute when the unit is reconnected to MegaCOMMS when in Snake Mode or console mode
Fan Speed	selects the fan speed from **10%** to **100%** - the rack will over-ride this setting if the internal temperature gets too high
Display	allows adjustment of the display brightness
Scroll	allows the scroll direction of the encoder to be **Standard** or **inverted**

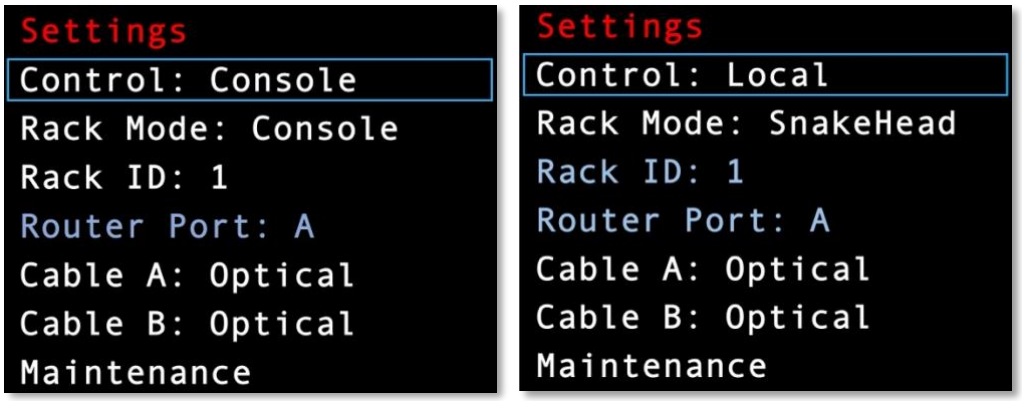
None-selectable Overview

Temperature	displays the internal ambient temperature of the unit

NOTE: Some of the options will be greyed out unless the unit is in **Local Mode**

Settings Sub Menu

When selected the **Settings Menu** appears on the screen allowing access to the rack's set-up functions:



20: Setting menu

Selectable controls

Control	switches control of the unit between the **Console** or **Local** (the SR unit itself)
Rack Mode	activates the mode options of either **Console**, **Snake Head** or **Snake Tail** (Router – future development)
Rack ID	selects the rack identity number of **1** or **2.** When two units are connected directly to a console each rack must have a different Rack ID.
Router Port	(currently none-selectable – for future development)
Cable A	selects cable type for **MegaCOMMS port A** from **Coaxial** or **Optical**
Cable B	selects cable type for **MegaCOMMS port B** from **Coaxial** or **Optical**
Maintenance	opens the **Maintenance Sub Menu**

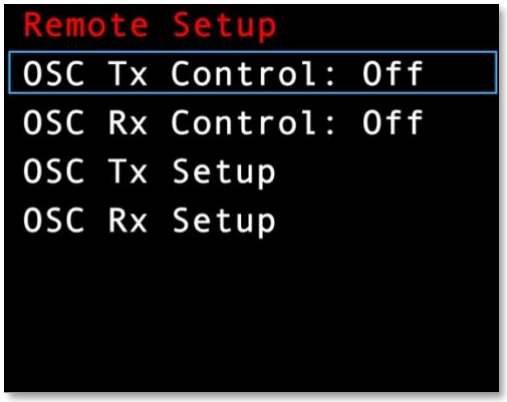
The first three settings (**Control, Rack Mode** and **Rack ID**) combine to define the mode of operation of the stage rack in conjunction with a console or another SR series stage rack. These rack operation modes are show in the table below:

Control	Rack Mode	Rack ID	How the Rack Operates
Console	Console	1	Rack controlled by console, appears as rack 1
Console	Console	2	Rack controlled by console, appears as rack 2
Local	Console	N/A	As remote but allows the Rack to control port parameters. Console control is locked out.
Local	Snake Head	N/A	Rack becomes the stage end of the digital snake
Local	Snake Tail	N/A	Rack becomes the console end of the digital snake

Remote Setup

When selected the **Remote Setup menu** appears on the screen allowing access to the rack's set-up for **OSC (Open Sound Control)** when the unit is connected to Ethernet based network.

This allows the rack to send information back to the console when the rack is set to Local mode; for example, when the gain of an input is adjusted from the SR rack it sends the control data back to the console via Ethernet.



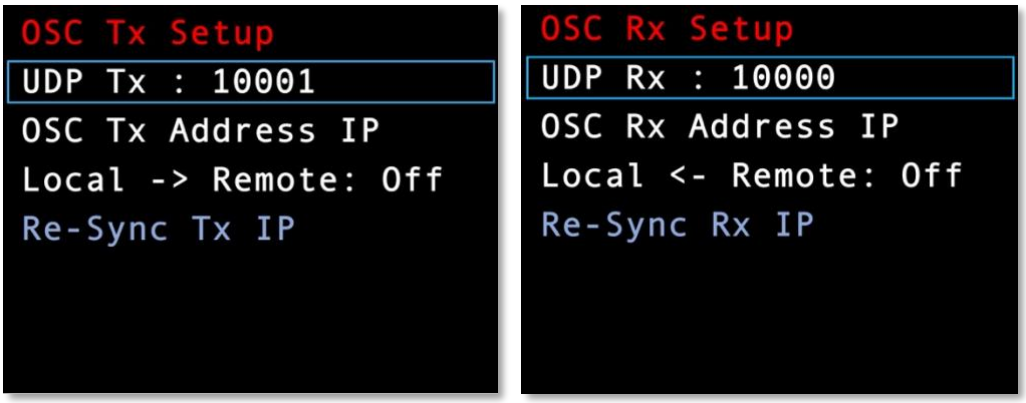
21: Remote Setup Menu for OSC.

Selectable controls

OSC Tx Control	switches OSC data control for transmitting OSC data **Off** or **On**
OSC Rx Control	switches OSC data control for receiving OSC data **Off** or **On**
OSC Tx Setup	opens the transmit setup menu
OSC Rx Setup	opens the receive setup menu

OSC Tx or Rx Setup Sub Menu

When selected the **Remote Setup menu** appears on the screen allowing access to the rack's network set-up for OSC. This process is usually set automatically but can be manually changed.

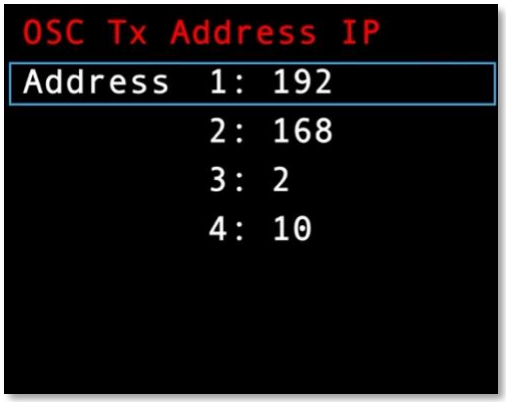


22: Shows the OSC menu for Tx (transmit) or Rx (receive)

Selectable controls

UDP Tx or Rx allows the UDP (User Datagram Protocol) source or destination port numbers to be changed to ensure correct data delivery on the device.

OSC Tx or Rx Address IP allows the setup of a static IP address to avoid potential IP conflicts if multiple units are on the network



23: Shows selectable functions in white

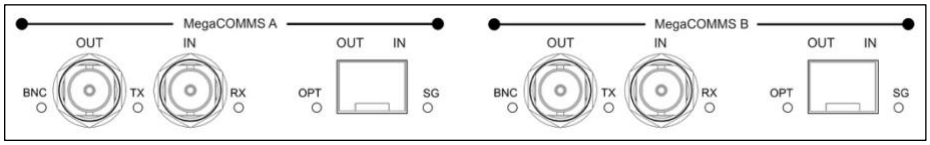
Local - > / < - Remote allows the unit to (**On**) or not (**Off**) transmit or receive control data

Re – Sync TX or Rx IP allows the resynchronisation of IP to the console should there be changes to the network infrastructure, IP conflicts or an expired IP address. After this process the rack will restart itself.

Connecting the Hardware

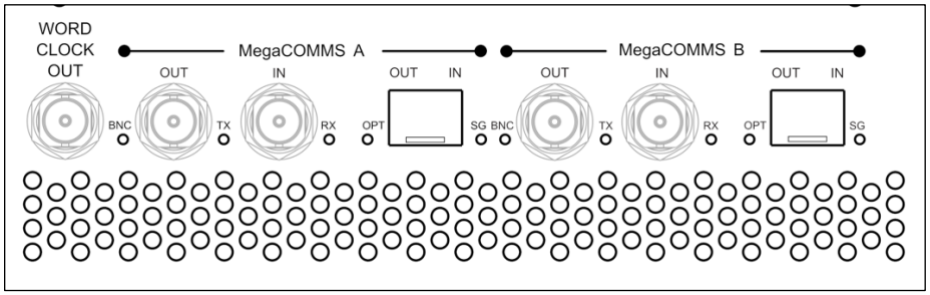
MegaCOMMS

Cadac's proprietary MegaCOMMS hi-speed data protocol is used to interconnect the stage racks to the console. The stage racks and the control surface have four BNC sockets to provide the main system data interconnection, labelled IN (RX) A, OUT (TX) A and IN (RX) B, OUT (TX) B. The interconnections are also available on optical via two duplex optical LC ports next to the BNC sockets:



24: Stage Racks - CM-SR64, CM-SR40 and CM-SR24 – have 2 pairs of MegaCOMMS ports on BNC connectors and 2 duplex optical LC ports

Cadac consoles also have four BNC sockets and two optical ports:



25: Cadac consoles have 2 pairs of MegaCOMMS ports on BNC connectors and 2 duplex optical LC ports

The two paths, A and B, carry identical and synchronous data, and can be used in various ways, depending on whether system redundancy is required. Providing a redundant path gives greater system robustness, as the MegaCOMMS unit will automatically switch its comms to Path B if communication is lost on Path A, as might occur if a cable is damaged. Note that the Cadac CM-J series system is fully functional in all respects if only one coax TX / RX or optical path is connected.

To use the duplex optical LC ports, it will require the purchase of compatible 1000BASE-LX/LH SFP 1310nm 10km DOM Duplex LC MMF/SMF transceiver modules from a third party, or for very short distances Direct Attach Copper Cables.

System Connection Options

The console and stage racks should be connected using one of the system configurations shown over the next few pages. The diagrams depict systems with one or two stage racks, using optical fibre and / or coaxial cables, in either redundant or non-redundant configurations, plus as a digital snake.

IMPORTANT: **Best Practice when Designing a System**

When using coaxial cable (3G HD-SDI), it is best practice **NOT** to tape power cables to the coaxial cable. This could lead to interference with the signal and result in unwanted audio artefacts, or in the worst case, total loss of audio. It is highly recommended that **all coaxial cables be connected** to the appropriate units **prior to powering** them on.

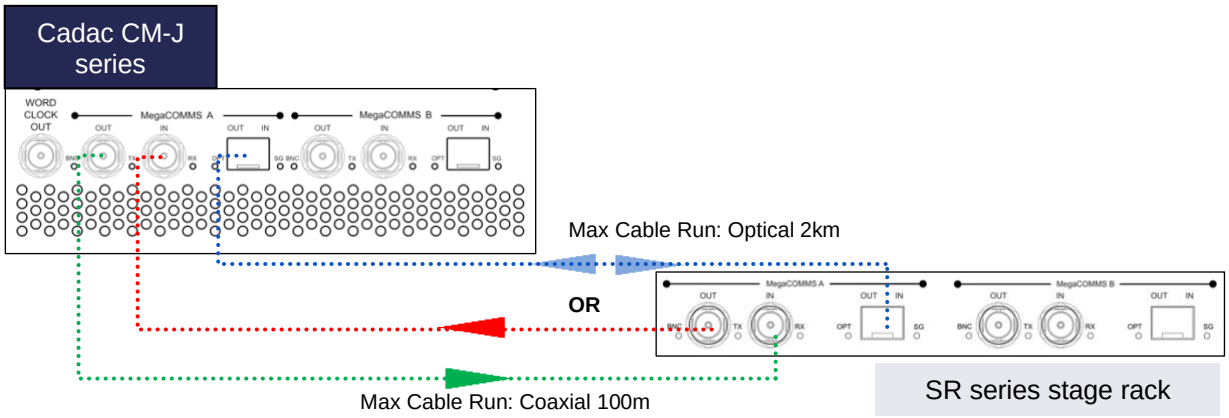
When designing a **non-redundant system**, it is extremely important to ensure that the **total cable runs do not exceed 100m for coaxial and 2km for fibre optic**.

When using **redundancy for a single stage rack,** the cable runs (fibre optic or coaxial) from MegaCOMMS Port A and B must be of **similar lengths -** up to a maximum of 100m for coaxial or 2km for optical.

When using **redundancy for two stage racks,** the optical and coaxial runs from the console to the stage rack must not exceed 2km or 100m respectively - and must be of **similar lengths**. The coaxial link cables connecting the two stage racks must not exceed 100m.

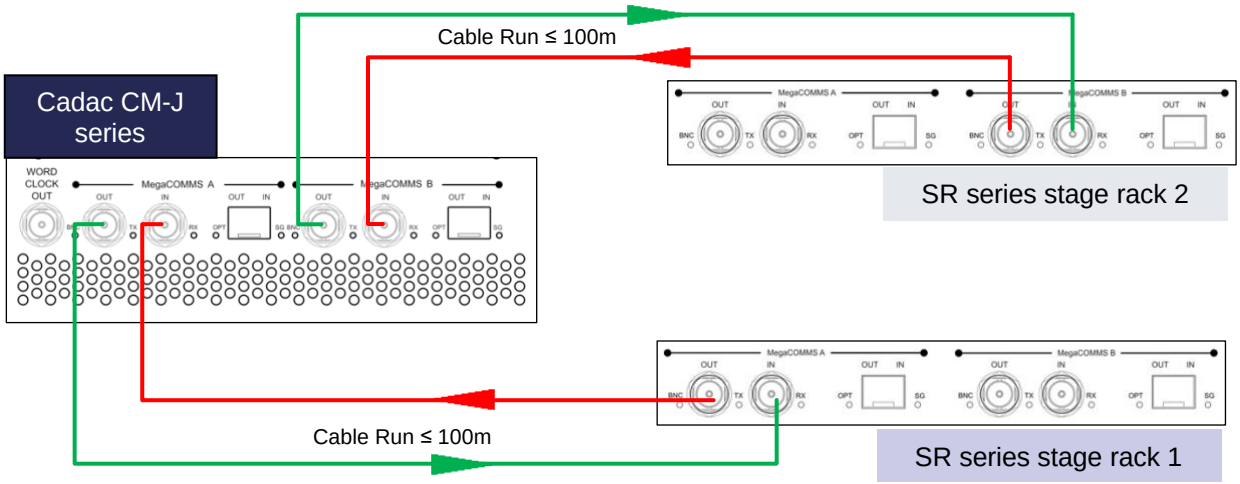
When designing a redundant or daisy chain system, MegaCOMMS port A or B from the console **MUST** be connected to **MegaCOMMS port A** - NOT port B. Any redundancy link cables must use ports B on both units.

One stage rack: Non-Redundant System using coaxial cables (or fibre optic)

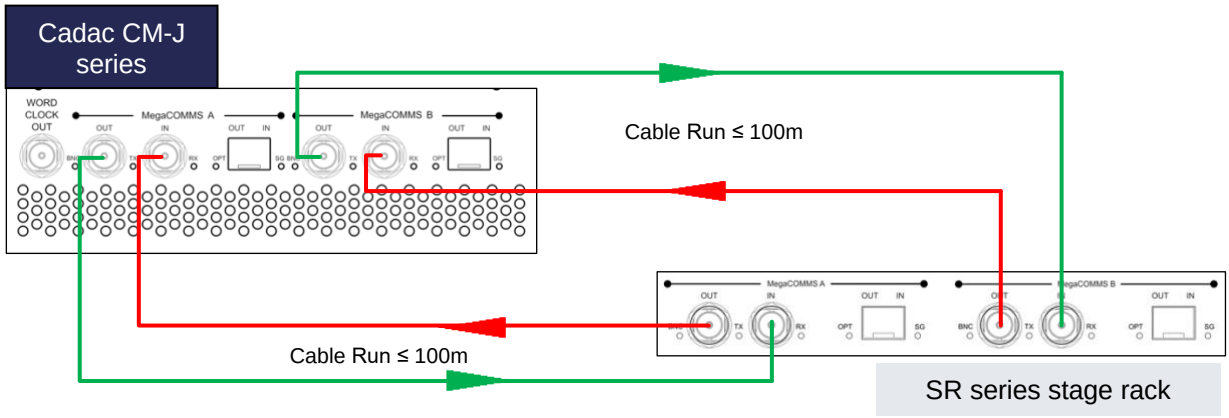


NOTE: You cannot use coaxial and fibre optic cable on the same MegaCOMMS port at the same time. One cable type must be selected for that port.

Two stage racks: Non-Redundant System using coaxial cables

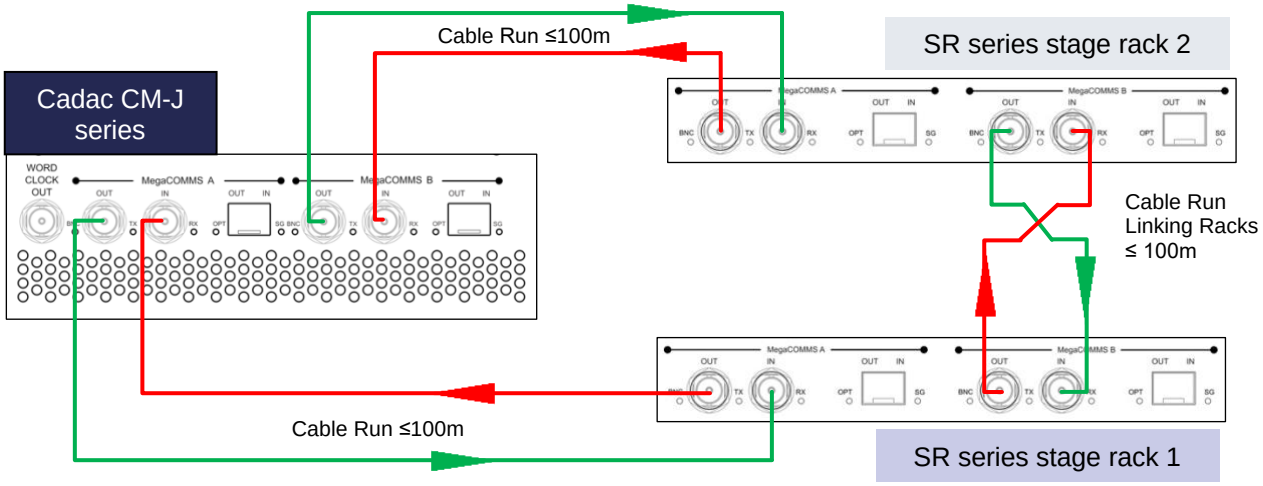


One stage rack: Redundant System using coaxial cables



NOTE: The coaxial cables within the system must be of similar length.

Two stage racks: Redundant System using coaxial cables

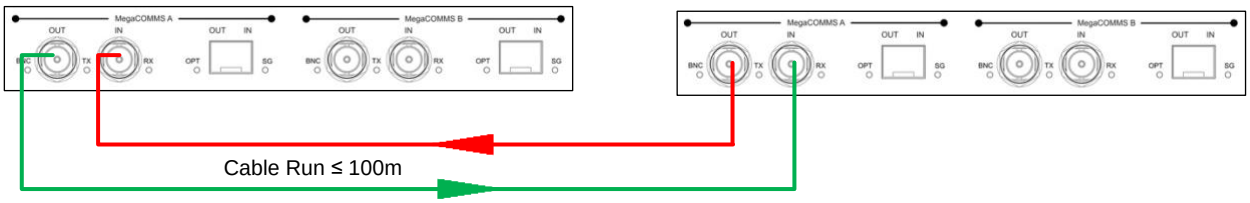


NOTE: With the system setup above MegaCOMMS *PORT A* on both stage racks MUST be connected to the console. The coaxial cables linking the console to the racks must be of similar length.

Snake Mode between two racks: Non-Redundant System using coaxial cables

SR series stage rack: Snake Head

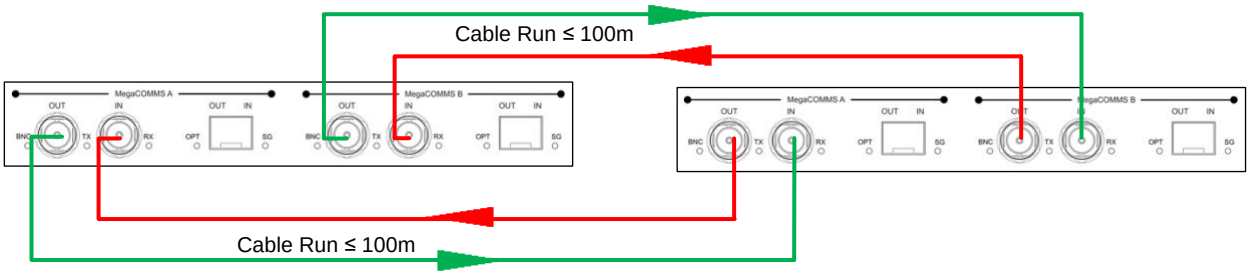
SR series stage rack: Snake Tail



Snake Mode between two racks: Redundant System using coaxial cables

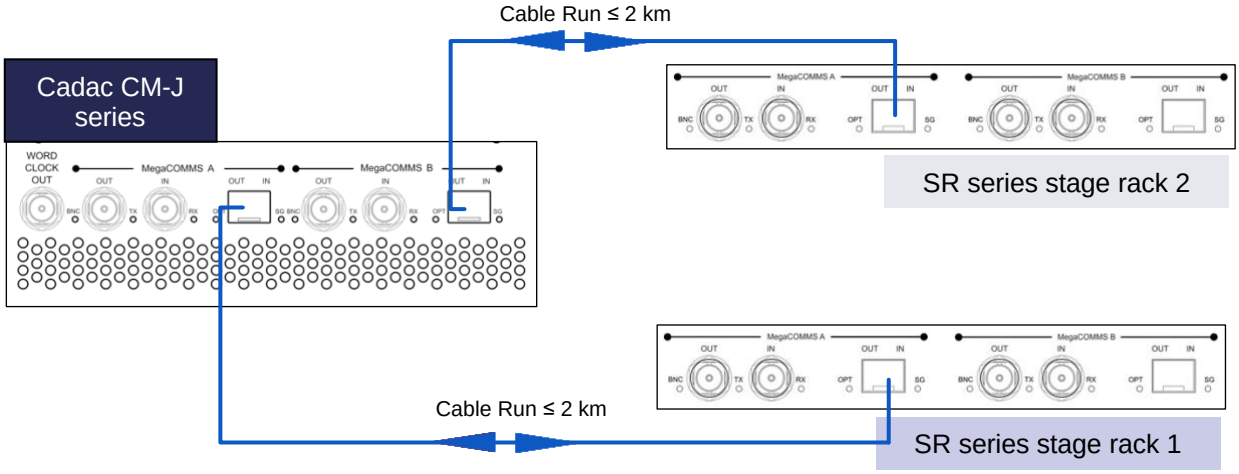
SR series stage rack: Snake Head

SR series stage rack: Snake Tail

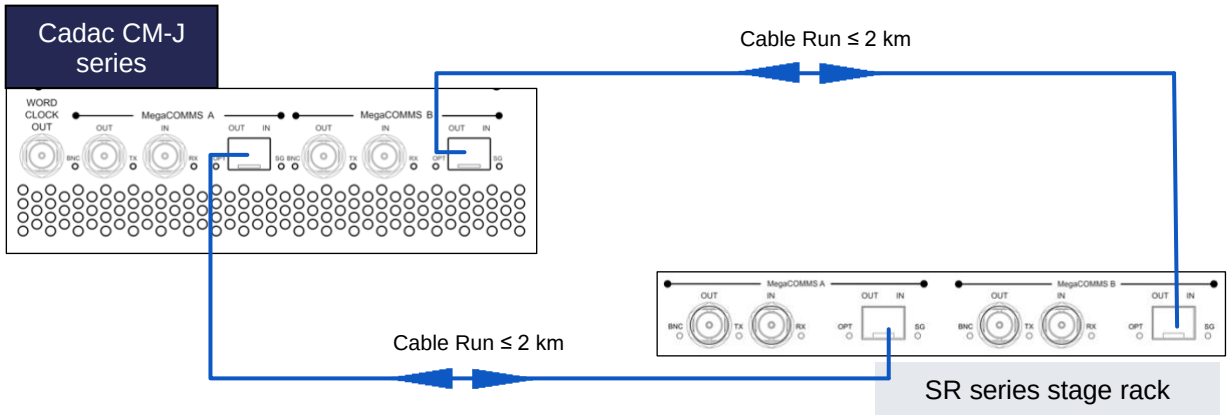


NOTE: The coaxial cables within the system must be of similar length

Console and two stage racks: Non-Redundant System using fibre optic cable

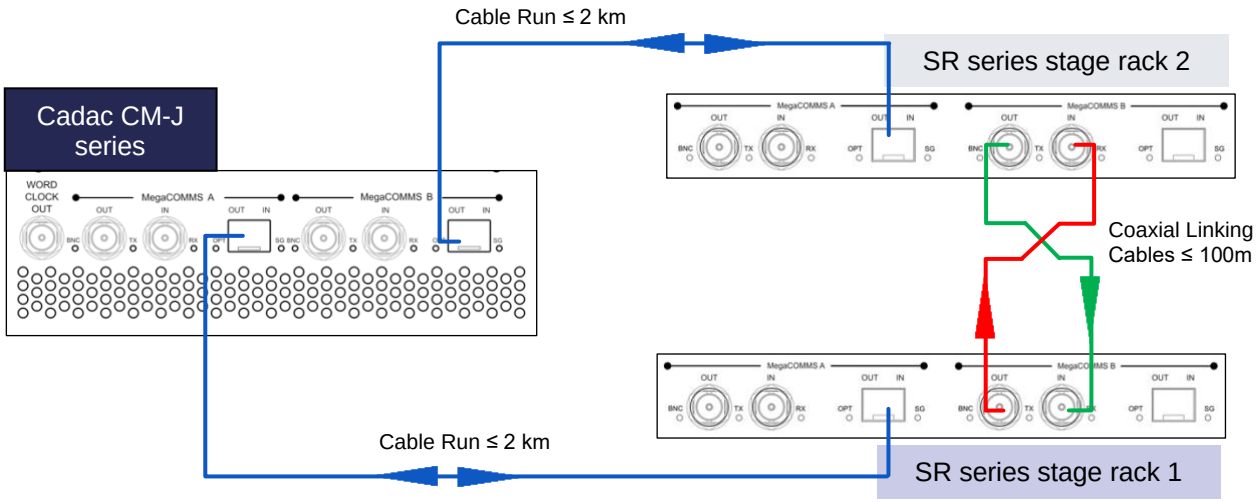


Console and one stage rack: Redundant System using fibre optic cables



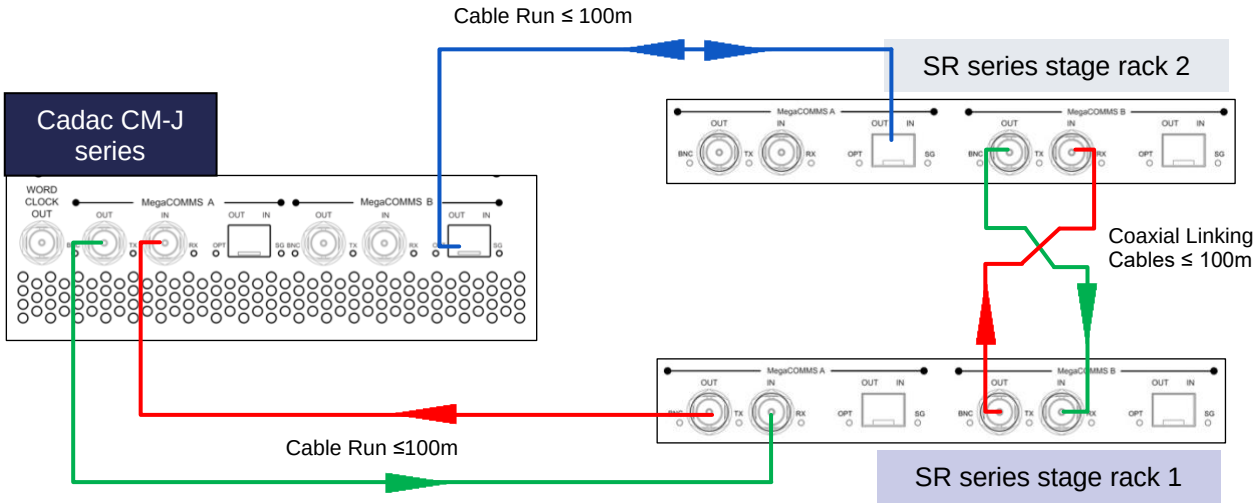
NOTE: The fibre optical cables within the system must be of similar length.

Console and two stage racks: Redundant System using fibre optic cables with coaxial linking



NOTE: With the system setup above MegaCOMMS *PORT A* on both stage racks MUST be connected to the console. The fibre optical cables within the system must be of similar length.

Console and two stage racks: Redundant System using fibre and coaxial with coaxial linking

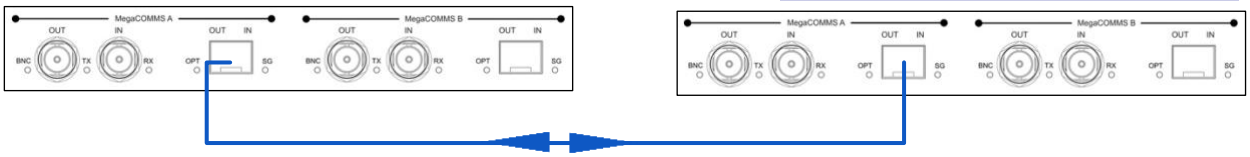


NOTE: With the system setup above MegaCOMMS *PORT A* on both stage racks MUST be connected to the console. The fibre optical cables within the system must be of similar length.

Snake Mode between two racks: Non-Redundant System using fibre optic cables

SR series stage rack: Snake Head

SR series stage rack: Snake Tail

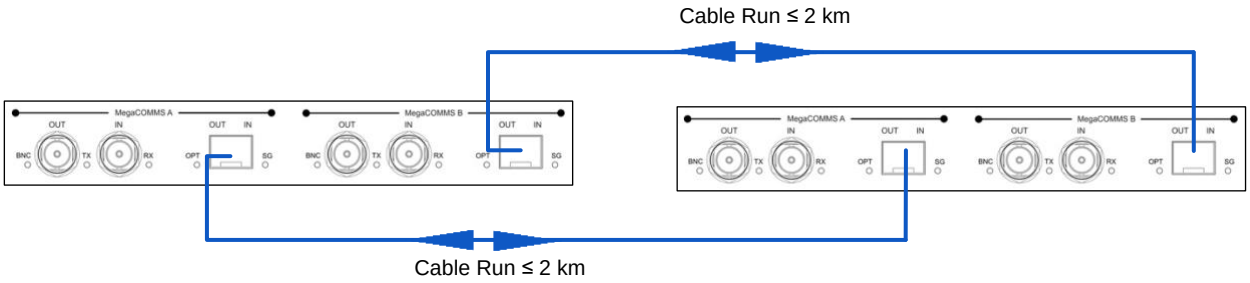


Cable Run ≤ 2 km

Snake Mode between two racks: Redundant System using fibre optic cables

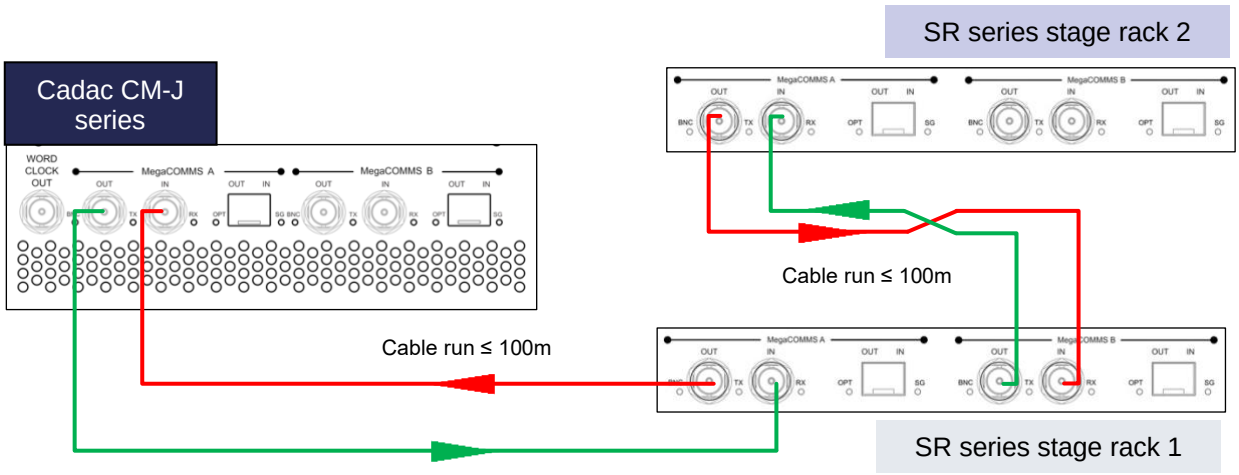
SR series stage rack: Snake Head

SR series stage rack: Snake Tail



NOTE: The fibre optical cables within the system must be of similar length

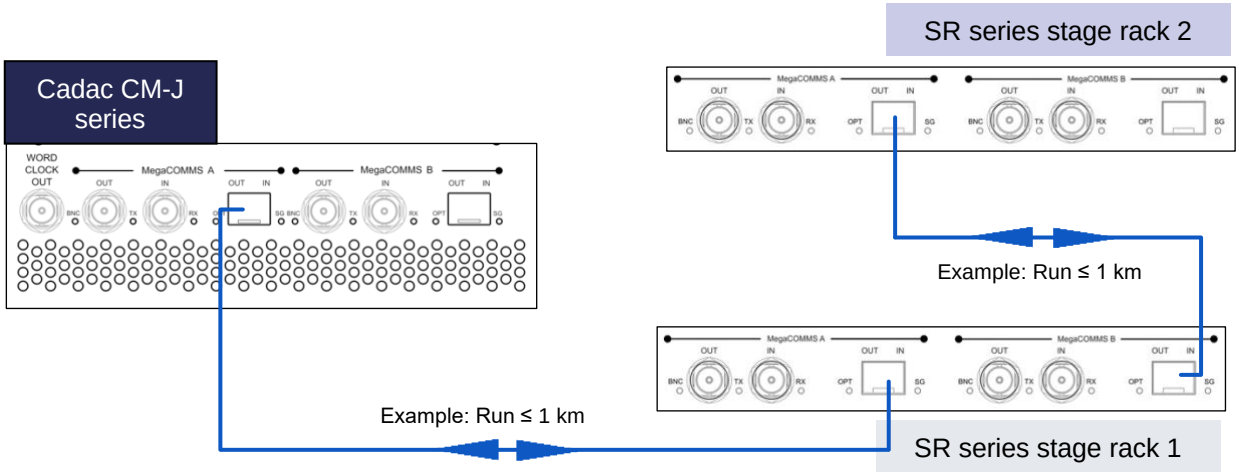
Console and daisy chaining two racks using coaxial cables



NOTE: With the system setup above MegaCOMMS *PORT A* on the first stage rack MUST be connected to the console.

Console and daisy chaining two racks using fibre optic cables

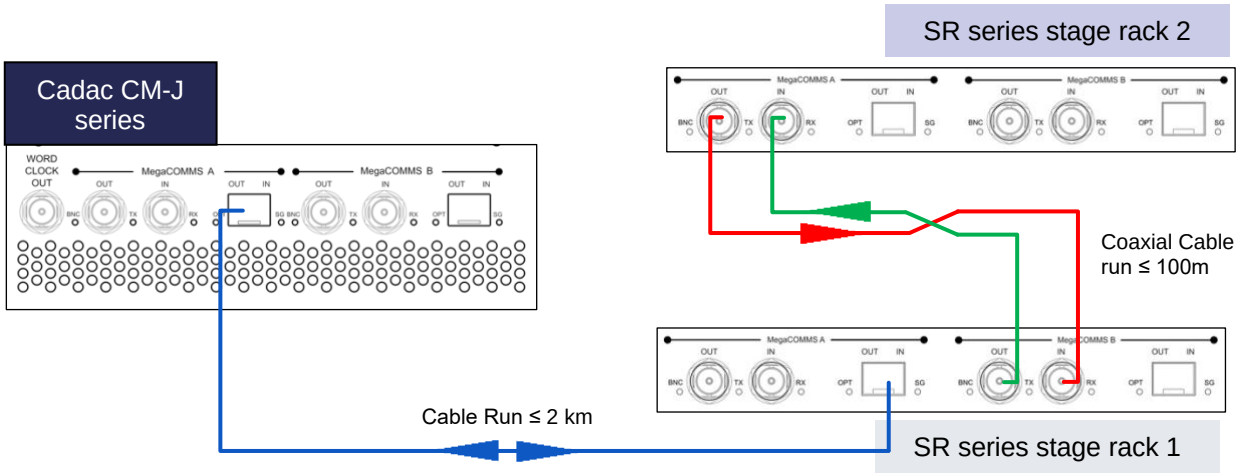
Total cable run within the system must not exceed 2km



NOTE: With the system setup above MegaCOMMS *PORT A* on the first stage rack MUST be connected to the console.

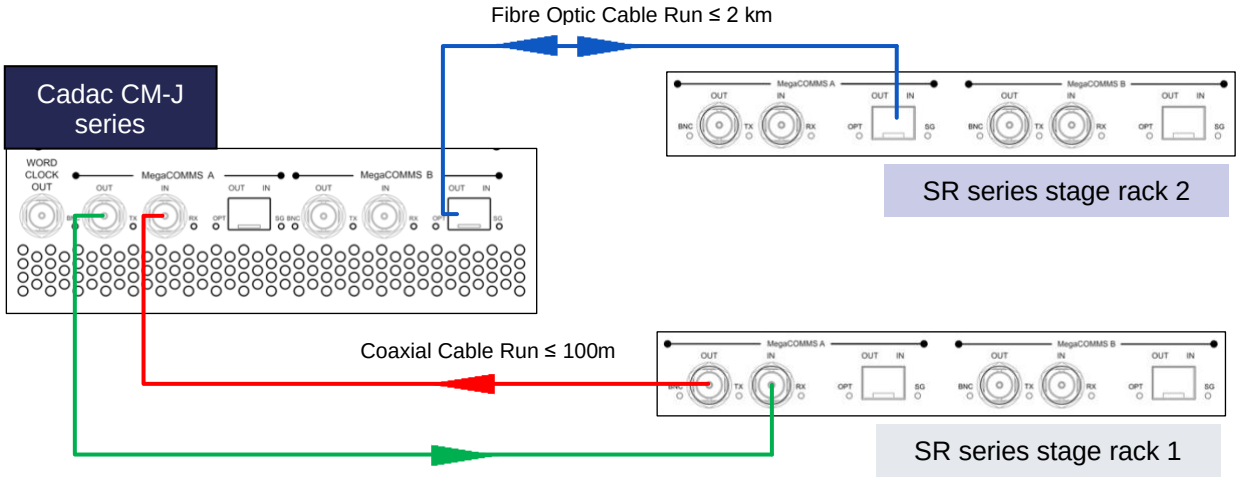
Console and daisy chaining two racks using fibre optic and coaxial cables

Total fibre optic cable run within the system must not exceed 2km, however the coaxial run can go up to 100m



NOTE: With the system setup above MegaCOMMS *PORT A* on the first stage rack MUST be connected to the console. In this instance the fibre optic cable MUST connect the console to first stage rack, and the coaxial cable used to link the first stage rack to second rack. If this order is NOT followed, then the system could suffer from timing issues.

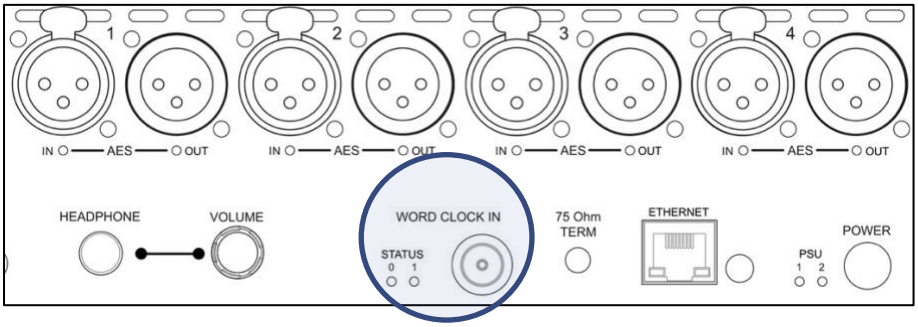
Console and two racks: Connecting one via fibre optic and the second via coaxial cables



NOTE: Only **RG6 video cable suitable for 3G HD-SDI (High-Definition Serial Digital Interface) should be used** for the Cadac MegaCOMMS connections. The cables should be terminated in BNC connectors of the appropriate type, and total system cable run should not exceed 100m (surface-to-stage rack or stage rack to stage rack as a snake). A suitable cable: Kramer bulk Type BC-1X.

Word Clock In

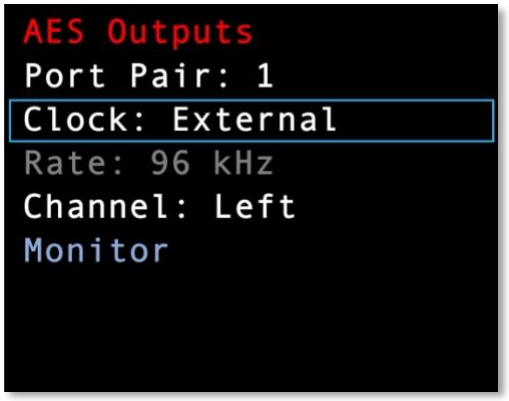
The stage racks cater for digital audio I/O in the form of eight AES3 inputs and eight AES3 outputs.



26: AES and Word Clock In connector

The AES3 outputs have Sample Rate Converters (SRCs) and can operate at any frequency required by applying an external clock source to the WORD CLOCK IN connector.

When an external clock is being used then **External** must be selected on the AES3 Output sub menu (see section AES Sub Menu).



27: AES Output sub menu

Stage Rack Socket Assignment

The socket assignment on the rack is done using the on-screen Input and Output Assign functions on the console.

28: Cadac CM-J series Routing Screen

Custom Naming

The SR stage racks can be given a custom or a “friendly” name to help identify individual racks, for example “Stage Right”. The name can be up to 15 characters long.

The rack name will appear on at the top of the **Rack Menu** and, providing the racks are connected to the console via Ethernet, above either **Rack 1** or **Rack 2** on the console routing page.

Naming a SR rack is done via a web page accessed by a PC.

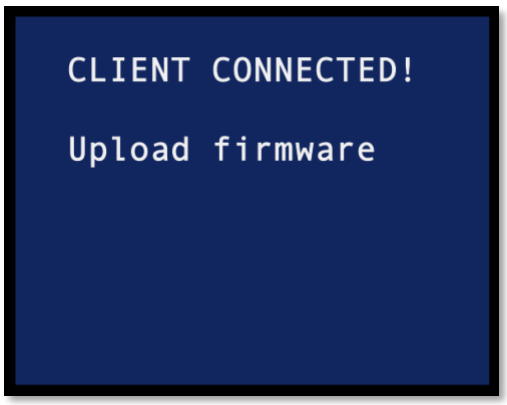
SR Stage Rack Naming Procedure

1. Connect the stage rack to the Windows PC via the Ethernet cable using the Ethernet port [12] on the front panel of the CM-SR unit

29: When attached to the PC the above screen will appear

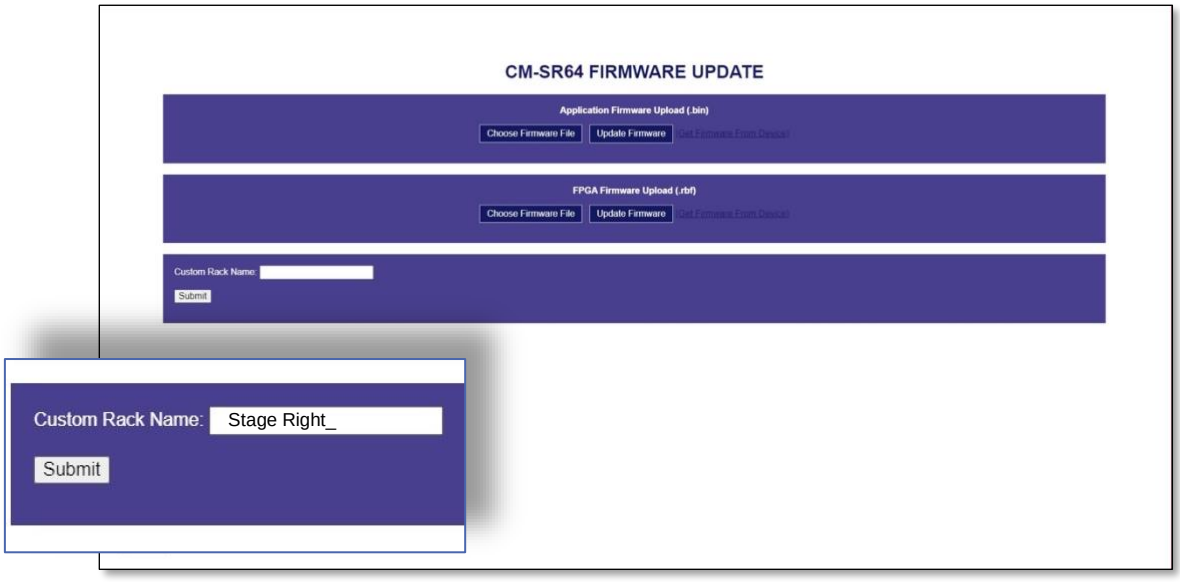
30: The above screen will appear while the stage rack looks for a client at the displayed IP address

NOTE: This could take several minutes to display all the information, please do not power down the unit during this process.



31: The IP address displayed on the SR stage rack needs to be typed into the web browser. When the appropriate client is found then the screen will display the above

At the same time the stage rack firmware update menu will appear on the PC browser window (Note not all web browsers maybe compatible):

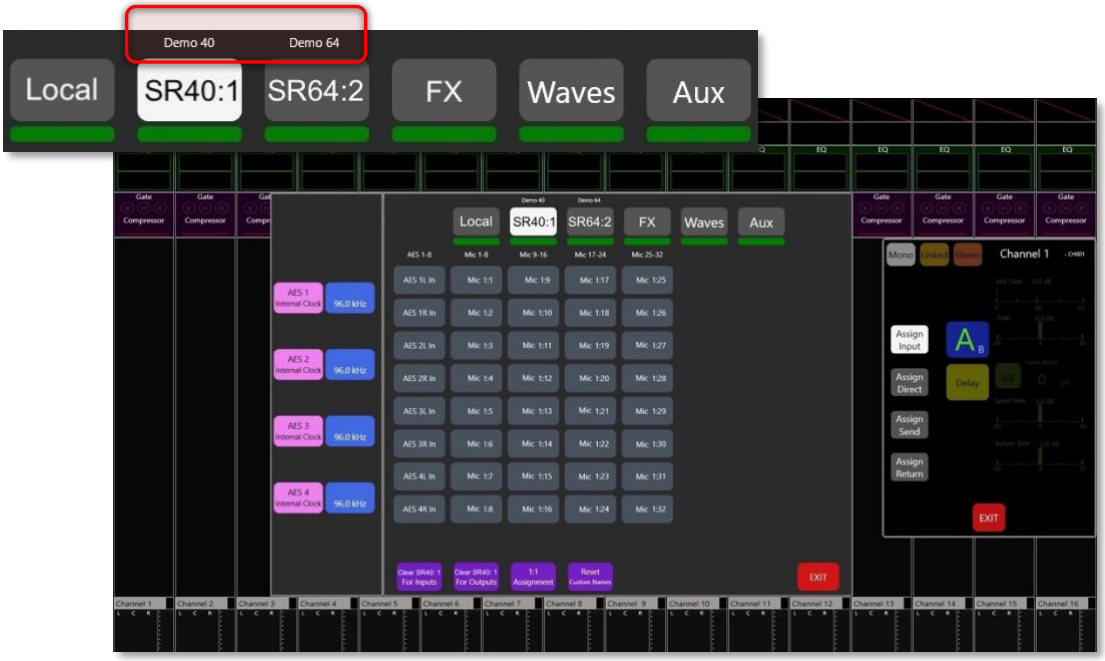


32: PC browser window – naming a CM-SR stage rack

Click on the “Custom Rack Name:” input box and type in the custom name (keeping to 15 characters) and then click on “Submit”.

The CM-SR unit name now has a custom or “friendly” name.

The custom name for the SR rack will appear on the console's routing page above the rack 1 and rack 2 slots. The slots will, however, still retain the type of rack that is attached to MegaCOMMS port A (rack 1) and port B (rack 2):



33: Custom Name

Connector Details

Analogue Inputs: 3-pin female XLR connectors. The inputs are electronically balanced and are suitable for connection of either microphones or line level sources. Input impedance is 1.2 kohms in Mic Mode, or 10 kohms in Line Mode, Mic or Line mode being selected from the assigned channel's Input Gain panel. The maximum input level is +40 dBu (with pad enabled). When an input connector is assigned as the input of a channel in Mic mode, 48 V phantom power is available, also switched from the channel's Input Gain panel. The connector should be wired as follows:

Pin	Connection
1	Screen
2	Signal 'hot' (phase)
3	Signal 'cold' (antiphase)

Analogue Outputs: 3-pin male XLR connectors. The outputs are electronically balanced with a source impedance of 50 ohms. The maximum output level is + 21 dBu. The connector should be wired as follows:

Pin	Connection
1	Screen
2	Signal 'hot' (phase)
3	Signal 'cold' (antiphase)

AES3 digital inputs: Four AES3 digital audio inputs are available at the rear of the control surface on 3-pin XLR female connectors. The AES3 format carries two independent audio channels. In accordance with the AES3 spec, the inputs are balanced, with a characteristic impedance of 110 ohms. Connections to these inputs should always be made using cable specifically designed for digital audio. The digital inputs are equipped with Sample Rate Converters (SRCs) and can accept sample rates between 44.1 kHz to 192 kHz.

Connector pinout is the same as XLRs for analogue audio:

Pin	Connection
1	Screen
2	Ch's A & B 'hot' (phase)
3	Ch's A & B 'cold' (antiphase)

AES3 digital outputs: Four AES3 digital audio outputs are available at the rear of the control surface on 3-pin XLR male connectors. The outputs are balanced, with a characteristic impedance of 110 ohms. Connections to these outputs should always be made using cable specifically designed for digital audio.

The digital outputs are equipped with Sample Rate Converters (SRCs), which may synchronise to other digital audio equipment using the WORD CLOCK IN connector.

Connector pinout is the same as XLRs for analogue audio:

Pin	Connection
1	Screen
2	Ch's A & B 'hot' (phase)
3	Ch's A & B 'cold' (antiphase)

Other Front Panel Audio I/O

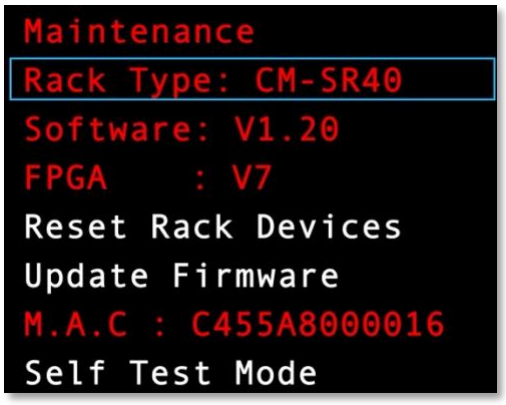
Headphones

The stereo monitor signal is also available on one ¼" (6.35 mm) 3-pole (TRS) jack socket for the connection to a pair of headphones. There is 1 socket on the front panel, along with a volume attenuator for each headphone. The sockets are wired as follows:

Pin	Connection
Tip	Left monitor output
Ring	Right monitor output
Sleeve	Screen (common)

Maintenance Sub Menu

The Maintenance window will confirm the rack type: CM-SR64 or CM-SR40 or CM-SR24.



34: Maintenance menu

It will also show the unit's current software version, along with the FPGA firmware version installed, plus the units M.A.C address (the unit's unique network address).

These are highlighted in red, which indicates these are for information only and cannot be selected (or have the option of being selected) from the menu.

Selectable controls

Reset Rack Device resets to unit back to **factory settings –** but keeps the unit's custom name

Update Firmware opens the stage rack **firmware update page**. This operation requires the unit to be connected to a Windows PC. See section "Updating Firmware".

Self-Test Mode This function is for trained service personnel only. This allows the unit to loop back; self-testing the AES, coaxial and optical ports with a pass / fail status indicated via the front panel LEDs.

WARNING: The unit will be disabled while in test mode.

Updating Firmware

The SR stage racks operating system undergoes a programme of continuous development, as a result the unit may be updated by loading new versions of the firmware as they become available.

This can be done by connecting an Ethernet cable to the front panel [12] linked to a Windows PC. Download the latest firmware version from www.cadac-sound.com (software is on the Support / Software Download page),

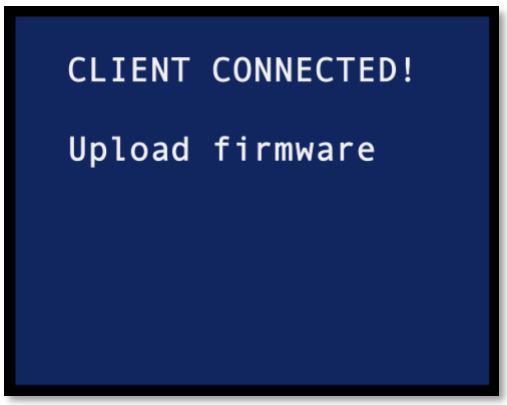
SR Stage Rack Firmware Upgrade Procedure

1. Download the SR firmware file from http://www.cadac-sound.com/
2. Connect the stage rack to the Windows PC via the Ethernet cable using the Ethernet port [12] on the front panel of the SR unit:

35: When attached to the PC the above screen will appear

36: The above screen will appear while the stage rack looks for a client at the displayed IP address

NOTE: This could take several minutes to display all the information, please do not power down the unit during this process.



37: Successful connection to client server

3. The IP address displayed on the SR stage rack needs to be typed into the web browser.

4. The stage rack firmware update menu will appear on the PC browser window (Note not all web browsers maybe compatible).

38: PC browser window

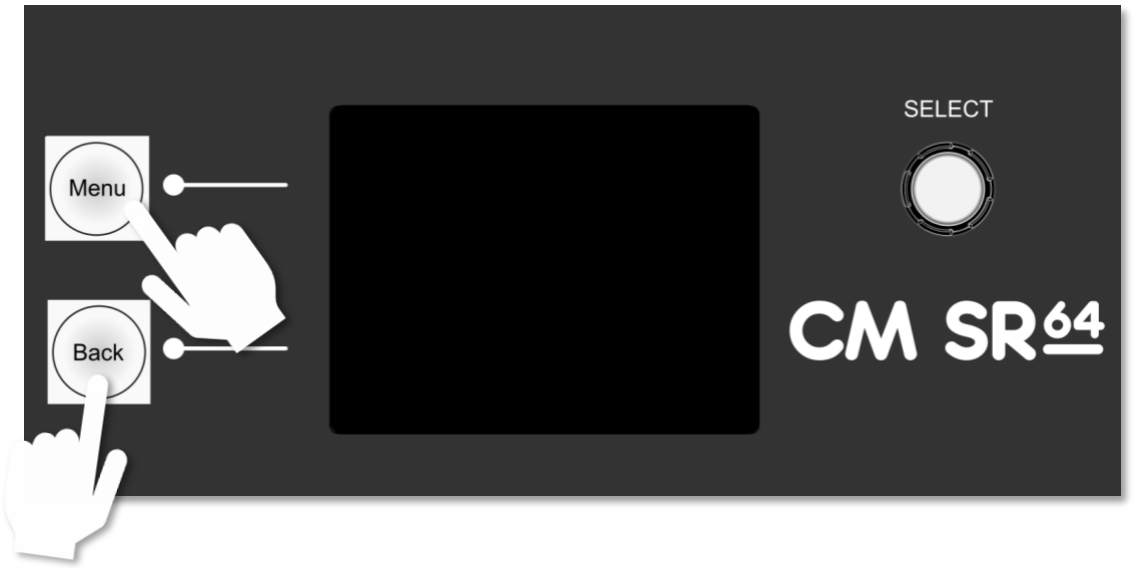
There are two firmware elements that may be updated:

- Arm Application Firmware (****.bin)
- FPGA Firmware (****.rbf)

Choose the appropriate Firmware (latest version on the FTP site) and follow the on-screen directions.

Once this process has been successfully completed - the update should take no longer than 30 seconds - the unit will say UPDATE COMPLETE.

5. The unit will then need to be powered off (ideally disconnected from the power)
6. Reconnect the power
7. Before restarting the unit press and hold the MENU [1] and BACK [2] buttons on the front panel
8. Now power up the unit – still holding the MENU and BACK buttons



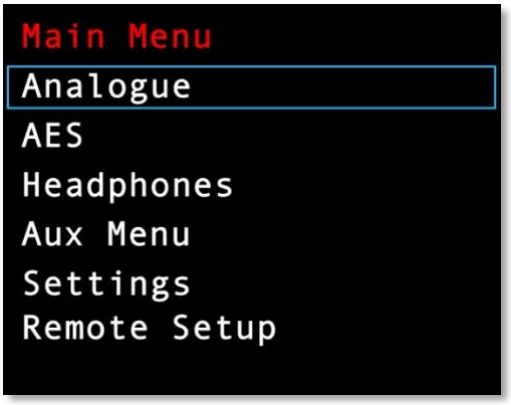
39: Press both buttons simultaneously

Wait for the following screen to appear before releasing the MENU and BACK buttons:

40: Unit resetting to factory defaults

9. The unit will now go through **Reset Rack Device** process to return it to factory defaults. This will **erase every user stored setting** from the unit.

10. When the unit has reset it will display the **Main Menu**



41: Unit has finished resetting to factory defaults

11. The unit has now successfully completed the firmware update

If the unit fails to update it will return to the menu without restarting. If the unit continually fails to update please contact your local distributor.

Unit Factory Reset

The SR stage racks may, on the rare occasion, need a factory reset as the screen may have become locked and the menu has become inaccessible. This could be a result of a failed firmware upgrade.

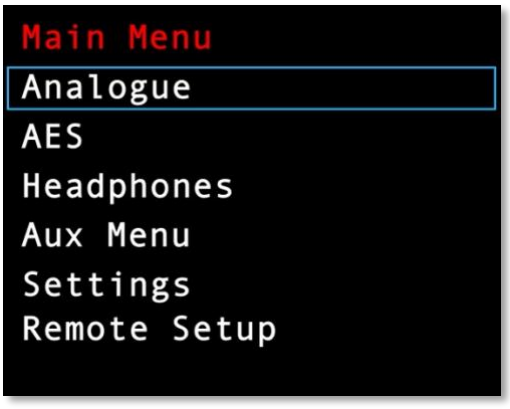
A factory reset can be done, without need of accessing the **Maintenance Sub Menu** and the selecting **Reset Rack Device** function, by following the procedure below.

Unit Factory Reset Procedure

1. Power off the unit (ideally discount from the power)
2. Reconnect the power
3. Press and hold the MENU [1] and BACK [2] buttons on the front panel
4. Now power up the unit – still holding the MENU and BACK buttons
5. Wait for the following screen to appear before releasing the MENU and BACK buttons:

42: Recall defaults – the unit will now continue and reset to factory defaults

6. The unit will now go through **Reset Rack Device** process to return it to factory defaults
7. When the unit has reset it will display the **Main Menu**:

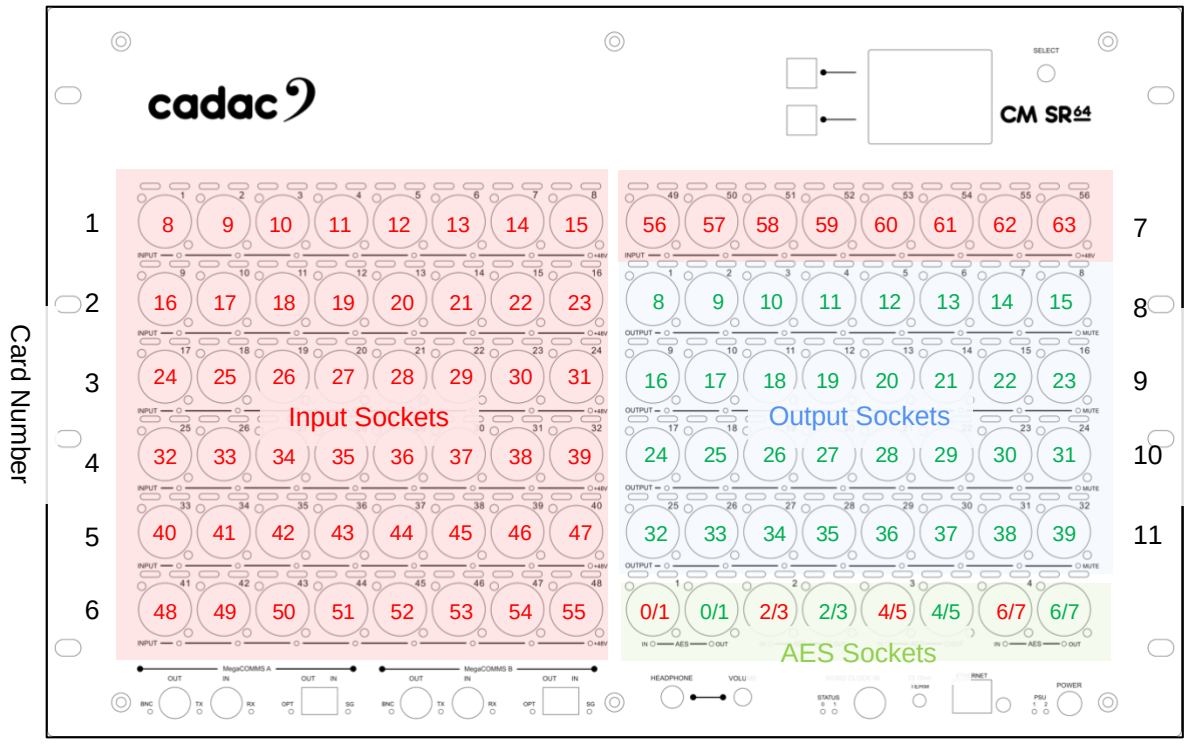


43: Unit has finished resetting to factory defaults

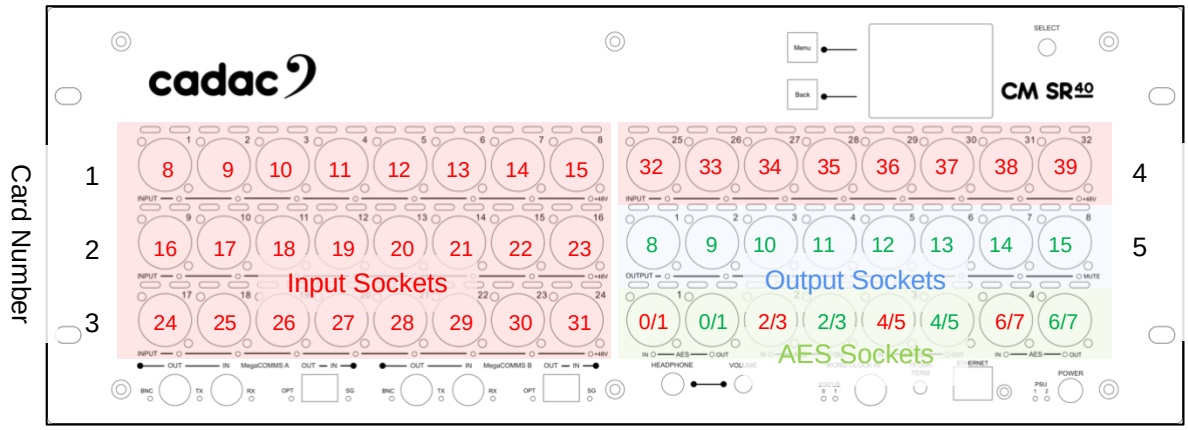
Appendix

Socket / Port Mappings against Physical Port Positions

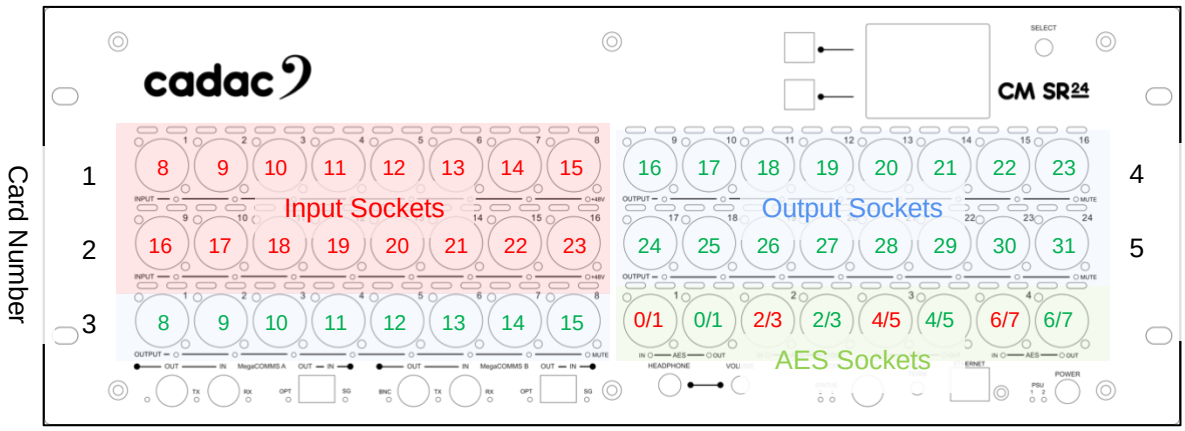
Be aware that port numbers **do not match** the console view of the stage rack port assignments, these are defined as below for each individual stage rack.



44: Cadac CM-SR64



45: Cadac CM-SR40



46: Cadac CM-SR24

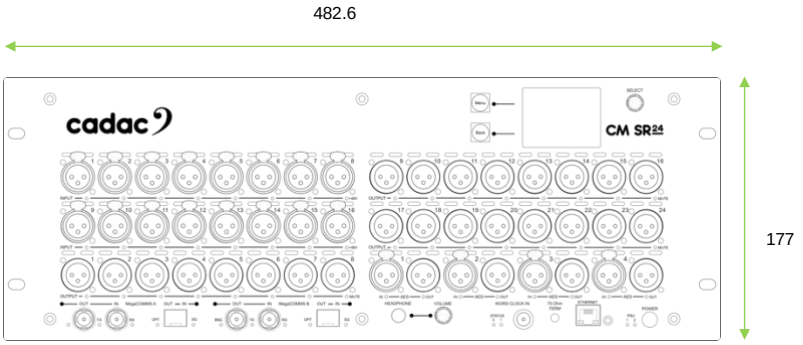
Technical Specifications

General Specifications	
Screen	2.4-inch, 240 x 320 pixels, 262k colour display
PSU	2 x internal PSUs 100-240V AC 50-60 Hz Output requirements: +17 V, -17 V, +12 V
Headphone Amp	¼ “(6.35mm) 3-pole (TRS) With attenuator
CM-SR24 IO	16 x XLR Mic Inputs (inc 48 V, PAD and 1 dB gain steps) 24 x XLR Balanced outputs 4 x XLR AES/EBU inputs 4 x XLR AES/EBU outputs
CM-SR40 IO	32 x XLR Mic Inputs (inc 48 V, PAD and 1 dB gain steps) 8 x XLR Balanced outputs 4 x XLR AES/EBU inputs 4 x XLR AES/EBU outputs
CM-SR64 IO	56 x XLR Mic Inputs (inc 48 V, PAD and 1 dB gain steps) 32 x XLR Balanced outputs 4 x XLR AES/EBU inputs 4 x XLR AES/EBU outputs
XLR	Neutrik connectors Tolerant of 48 V connection and short circuit protected
Comms	2 x Cadac MegaCOMMS on: • 4 x BNC connectors • 2 x duplex optical LC ports ○ 1000BASE-LX/LH SFP 1310nm 10km DOM Duplex LC MMF/SMF transceiver modules using single mode fibre optic cable

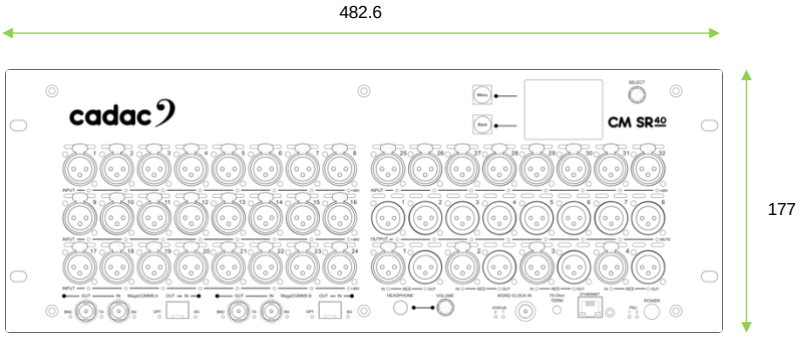
Audio Specification	
Sample Rate	96 kHz
Processing Delay	Sub 0.4 millisecond latency through complete signal chain
Internal Processing	40-bit floating point
ADC/DAC	24-bit
Frequency Response	20 Hz to 44 kHz + 0.5 / -1.5 dB
THD+N	better than 0.005% @unity gain, 10 dB input at 1 kHz
Channel Separation	better than 90 dB
Residual Output Noise	< -90 dBu (20 Hz – 20 kHz)
MIC EIN	< -127 dB with 200 Ohm source impedance
Maximum Output	21 dBu

Dimensions and Weights

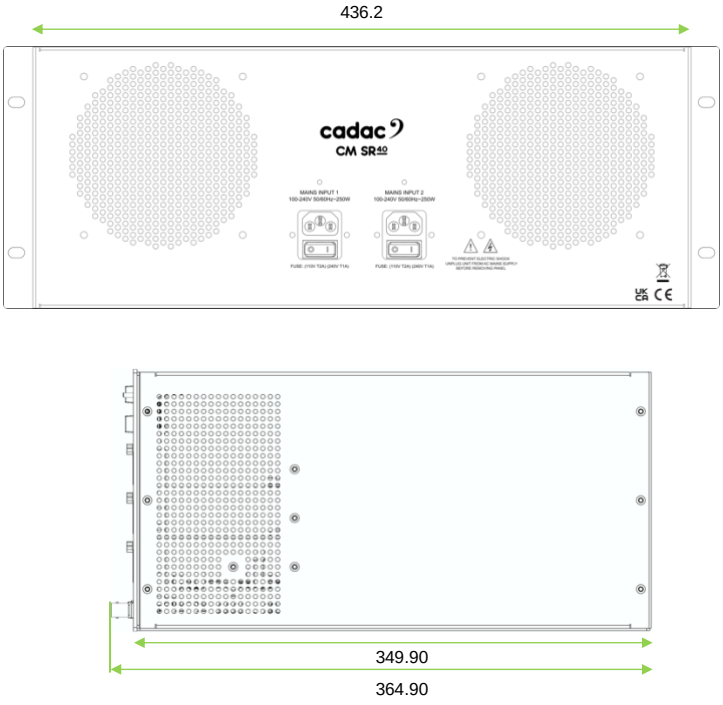
CM-SR24



CM-SR40

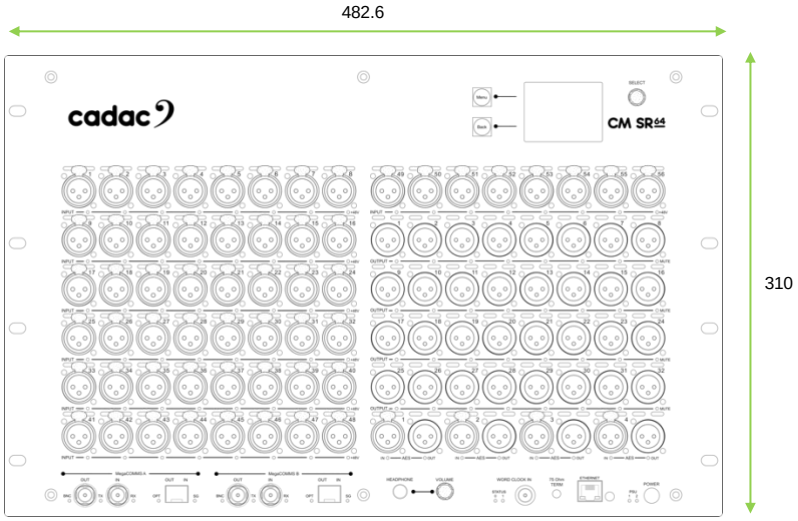


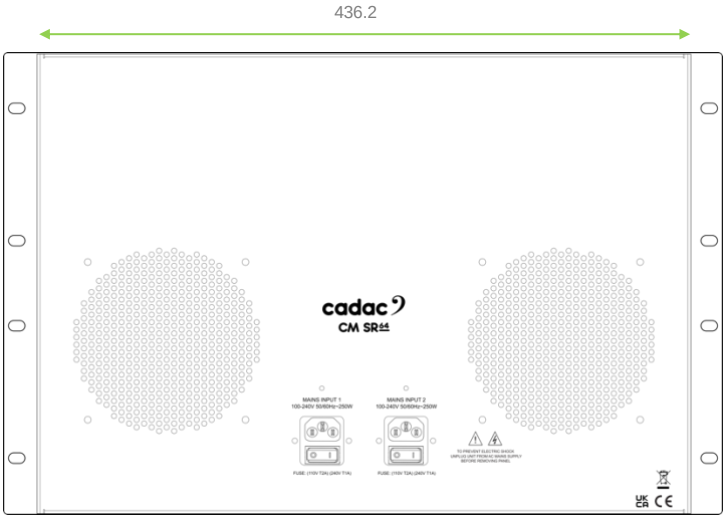
CM-SR24 and SR-CM40

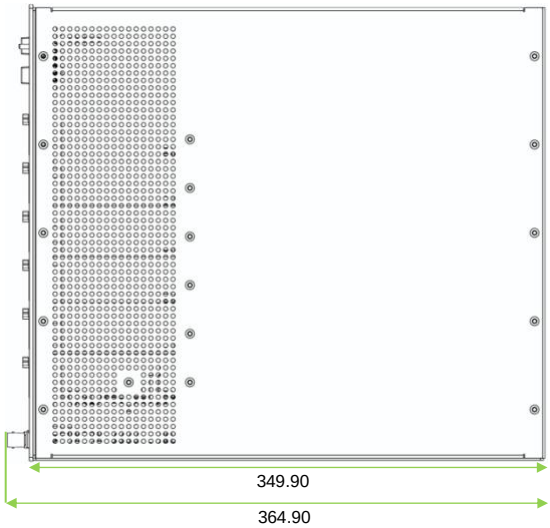


Weight: 7.1 kgs / 15.65 lbs

CM-SR64







(Dimensions in mm)

Weight: 10.2 kgs / 22.48 lbs

Notes:

Cadac Consoles
One New Street
Luton
Bedfordshire
England
LU1 5DX

www.cadac-consoles.com