

Training Course Syllabus

Ensuring Excellence in Broadcast Sound

C | A | L | R | E | C



Training Courses

A highly skilled and knowledgeable Audio Engineer is an invaluable member of any broadcast team. No matter what the role, being able to deal with the challenges of a fast-paced broadcast environment instills peace of mind.

Calrec believe in ensuring our customers are not only delighted with their product, but also that they realise its full potential.

Calrec's comprehensive suite of training programmes are designed to unlock that potential. Our range of courses offer programmes for every skill level; whether you need to learn how to operate a console, configure a network or somewhere in between, there is a course for you.

And because every broadcaster has a unique workflow which fits their own specific production requirements, we can tailor our courses to suit your exact needs.

Training content is continually updated to include the latest hardware and software features, and we can accomodate specific hardware/software combinations to match your own working environment.

For more information about this or any of our training courses, or to discuss tailoring your own course, please contact us at training@calrec.com

Training courses are available for the following:

- Apollo and Artemis
 - Overview
 - Operational
 - Super-User
 - Frontline Maintenance
 - Technical
 - Masterclass
- Summa
 - Operational
 - Technical
 - Frontline Maintenance
- Hydra2
 - Frontline Maintenance
 - Technical
 - Masterclass

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Overview

The overview course gives a basic outline of Calrec's Apollo or Artemis console. It can be delivered as a formal presentation or a drop-in session.

Course length: ½ day, 3-4 hours

Attendees: 1-5

Prior experience

No prior experience of Calrec consoles is necessary or assumed. Prior experience of mixing consoles may be helpful but not essential.

Who is it for?

Audio Operators/Sound Engineers with no experience of Calrec Apollo or Artemis consoles.

Broadcast Support Engineers/Audio Guarantees who require a baseline level of knowledge of Calrec systems to help diagnose whether problems are technical or operational.

Students wishing to gain an understanding of broadcast consoles and their unique feature sets.

What will you learn?

Attendees will gain an operational overview of the main features of an Apollo or Artemis console. Attendees will understand audio routing, processing and hardware connectivity.

Apollo/Artemis

Course Content

Overview courses can be tailored to specific needs on an informal basis. Below is the suggested content covered in an overview course.

Hardware Overview

- The surface
- The core
- Hardware interconnectivity
- Basic Hydra2 networks
- The console PC

The Surface

- Fader setup
- Panel overview
 - Control types
 - Fader strips
- DSP Processing
 - EQ/Dynamics/Delay/Autofaders
- Audio routing
- Layers
- Basic console layout/configuration



Calrec's Training Facility at its headquarters in Hebden Bridge

Operational

The operational training course provides a fundamental operational overview of the Calrec Apollo, Artemis or Summa console.

Course length: 1 day, 6 hours minimum

Attendees: 1-5 (1-4 for Summa)

Prior experience

No prior experience of Calrec consoles is necessary or assumed. Prior experience of mixing consoles may be helpful but not essential.

Who is it for?

Audio Operators looking to develop a fundamental understanding of Calrec consoles or looking to refresh their understanding on the latest generation of console.

What will you learn?

Attendees will gain a practical understanding of all fundamental aspects of operating an Apollo, Artemis or Summa console. The wider operational environment is taken into consideration through an overview of hardware connections and network interconnectivity.

Apollo/Artemis/Summa

Course Content

The Apollo/Artemis/Summa operational training course is the most frequently customised course and can be tailored to your specific needs. Below is the recommended course syllabus, but for more information about how we can tailor our one-day training courses, please contact us at training@calrec.com.

Hardware Overview

- The surface
- The core
- Hydra2 networks
- Network interconnectivity
- The console PC

The Surface

- Control overview
- Signal flow
- DSP processing
 - EQ/Dynamics/Delay/Autofaders
- Audio routing
- Mix-minus
- Layers

Building a Desk

- Fader setup
- Patching
- Bus configuration

Trainee Tasks

- A series of tasks will be set for trainees to complete, including building a show from a blank setup

The Apollo/Artemis super-user course includes all content from the one-day operational training course, and covers the more advanced features found on Calrec’s Apollo and Artemis consoles.

It also includes a comprehensive study of console configuration and Hydra2 networks.

Course length: 2 days, 12-hour minimum

Attendees: 1-5

Prior experience

No prior experience with Calrec consoles is necessary although a basic understanding of Calrec consoles may be beneficial. Prior experience with broadcast or audio mixing consoles would be beneficial.

Who is it for?

Audio operators looking to establish an advanced understanding of Calrec consoles. Senior Audio Supervisors responsible for the administrative side of console setup and configuration.

What will you learn?

Attendees will gain an advanced practical understanding of all operational features for Apollo/Artemis consoles. This will include content from the 1-day operational training course, in addition to advanced DSP functionality, Monitoring, Shows and Memories, Console configuration and working on Hydra2 Networks.

Course Content

Hardware Overview

- The surface
- The core
- Hydra2
- Redundancy
- Network interconnectivity
- The console PC

The Surface – Part 1

- Panel types and configuration
- Control hardware
- Fader strips
- Signal flow
- DSP processing
 - EQ/Dynamics/Delay/Autofaders
- Audio routing
- Mix-minus
- Layers
- Panning

Building a Desk

- Fader setup
- Patching
- Bus configuration

The Surface – Part 2

- Automixing
- Dynamics links
- VCA groups
- Advanced routing
- Wilds mode
- Custom console layout
- Preset management
- Processing independence
- Monitoring
- Shows and memories
- Folder hierarchy
- Default shows
- Memory isolates
- Port isolates
- Show management

Console Configuration

- User assignment
- Tools menu
- Downmix defaults
- Inserts
- Metering
- System options
- Fixed I/O patching
- Hydra options
- Alias configuration

Working with Hydra2 Networks

- Port sharing
- Port protection
- Hydra patchbays

Trainee Tasks

- A series of tasks will be set out for trainees to complete, including building a show from a blank setup
- Additional tasks will be set throughout the training course which will demonstrate the advanced features as part of a working show



Calrec’s Training Facility at the Audiotonix headquarters in Chessington

Frontline maintenance training provides a practical guide to providing frontline support for Apollo, Artemis, Summa and Hydra2 systems.

Course length: 1 day, 6-hour minimum

Attendees: 1-6

Prior experience

No prior experience with Calrec consoles is necessary although a basic operational understanding of Calrec consoles may be beneficial. Prior experience with broadcast equipment maintenance and IT networks may also be beneficial.

In order to accommodate practical demonstrations, full access to a Calrec console is necessary.

Who is it for?

Broadcast Support Engineers or Audio Guarantees who are responsible for the day-to-day running of broadcast facilities.

What will you learn?

Attendees will have a hands-on learning experience with the aid of practical demonstrations. This can include panel disassembly for fader maintenance, internal surface wiring, Hydra2 wiring and networking.

Course Content

System Overview

- Breakdown of system components
- Surface panels and connections
- Surface to rack connections
- Hydra2 networks

Surface Overview

- Panel types
- Panel connections
- Panel diagnostics
- POE and surface switches
- IP address allocation

Rack

- Card types and layout
- Status LEDs
- Sync

Hydra2 and H2O

- Hydra2 connectivity and addressing
- Status LEDs
- H2O

System Status and Resets

- System status messages
- Resolving reported messages
- Component resets

Maintenance

- MCS backup and restore
- Gathering logs
- Programming modules
- Backup PC specifications
- Backup PC setup

Panel Diagnostics

- Accessing panel hardware test mode
- Panel architecture
- Fader servicing
- Status LEDs
- Fault finding

Networking

- Hydra2 network topologies
- Bandwidth and trunk links
- Master and slave routers



48 Fader Calrec Apollo Console with 5.1 monitoring system at Hebden Bridge

An in-depth technical course covering all aspects of Apollo/Artemis/Hydra2 architecture, administration and engineering functions.

Course length: 2 days, 12-hour minimum

Attendees: 1-6

Prior experience

Operational understanding of Calrec consoles may be beneficial. Prior experience with broadcast equipment maintenance and IT networks may also be beneficial.

In order to accommodate practical demonstrations, full access to a Calrec console is necessary.

Who is it for?

Broadcast Support Engineers or Audio Guarantees who are responsible for the day to day running of broadcast facilities. Senior Broadcast Engineers who require a full understanding of administrative and engineering functions of standalone and networked systems.

What will you learn?

A full understanding of console system hierarchy and architecture. System maintenance, interrogation and diagnostic procedures. Network administrative functions. All course content is accompanied by practical demonstrations offering trainees a hands-on learning experience.

Course Content

System Overview

- Breakdown of system components
- Basic console configuration
- Surface panels and connections
- Surface to rack connections
- Hydra2 connections

Surface

- Panel types
- Panel connections
- Panel replacement
- Panel diagnostics
- Concord surface panels
- Multiple surface configuration

Panel Diagnostics

- Accessing panel hardware test mode
- Panel architecture
- Fader servicing
- Status LEDs
- Fault finding

Rack

- Card types and layout
- Hardware specification and components
- Software applications
- File structure
- Redundancy
- Status LEDs
- Dual core redundancy
- Summa Software Updater
- Synchronization

Console PC

- PC network configuration
- PC PSU distribution
- Backup PC specifications
- Backup PC setup instructions

POE and Surface Switches

- Hardware overview
- Power scheme
- IP address allocation

Hydra2

- Types of I/O
- Connection and identification
- Audio data and communication
- Modular AoIP specifications
- H2Hub overview
- Status LEDs

Networking and H2O

- Hydra2 specification
- Hydra2 network topology
- Router cores
- Bandwidth
- Trunk links
- Master/slave configuration
- Auto-promotion
- Network synchronization

Interrogation and Diagnostics

- PuTTY/WinSCP
- IP Addresses and management
- Alias IP addresses and DHCP
- Setup and configuration files
- Program Updater
- Gathering logs
- MCS backup and restore



24+8 Summa 180 console at Hebden Bridge

The Apollo/Artemis/Hydra2 masterclass contains all of the content from the Overview course and the two day Technical Training course.

The masterclass builds on this knowledge to create multi-console, multi-router core networks in order to provide a deep understanding of the Hydra2 network.

This offers the chance for trainees to gain a more comprehensive learning experience beyond that of the two day Technical course.

Under the supervision and guidance of a Calrec Support Engineer, trainees will build a Hydra2 network containing multiple consoles and a router core.

Advanced concepts regarding network resilience and functionality are practically demonstrated. Design considerations for maximising resilience are discussed.

A full system health check plan and procedure will be devised and carried out on the system.

Course length: 4 days, 24-hours minimum

Attendees: 1-6

Prior experience

Prior experience with broadcast IT networks and equipment maintenance may be beneficial. Prior operational experience is not essential but may be beneficial.

In order to accommodate practical demonstrations, full access to a Calrec system is necessary. It is strongly recommended that the training course is undergone at the Calrec factory in Hebden Bridge, UK, where Calrec are able to accommodate all hardware/network configurations and can provide replica systems of the customer's installation.

Who is it for?

Senior Broadcast Support Engineers or Audio Guarantees who are responsible for the day to day running of broadcast facilities, specifically facilities that contain a number of networked Calrec consoles. Senior engineers who require a full understanding of administrative and engineering functions of standalone and networked systems. System engineers who are responsible for the design and installation of broadcast audio networks.

What will you learn?

A complete understanding of console system hierarchy and architecture. System maintenance, interrogation and diagnostic procedures. Network administrative functions.

How to construct and maintain a Hydra2 network from scratch. All course content is accompanied by practical demonstrations offering trainees a hands-on learning experience.



Multi-Core Hydra2 Network

Course Content

System Overview

- Breakdown of system components
- Basic console configuration
- Surface panels and connections
- Surface to rack connections
- Hydra2 connections

Surface

- Panel types
- Panel connections
- Panel replacement
- Panel diagnostics
- Concord surface panels
- Multiple surface configuration

Panel Diagnostics

- Accessing panel hardware test mode
- Panel architecture
- Fader servicing
- Status LEDs
- Fault finding

Rack

- Card types and layout
- Hardware specification and components
- Software applications
- File structure
- Redundancy
- Status LEDs
- Dual core redundancy
- Synchronization

Console PC

- PC Network configuration
- PC PSU distribution
- Backup PC specifications
- Backup PC setup instructions

POE and Surface Switches

- Hardware overview
- Power scheme
- IP address allocation

Hydra2

- Types of I/O
- Connection and identification
- Audio data and communication
- Modular AoIP specifications
- H2Hub overview
- Status LEDs

Networking and H2O

- Hydra2 specification
- Hydra2 network topology
- Router core
- Bandwidth
- Trunk links
- Master/slave configuration
- Auto-promotion
- Network synchronization

Interrogation and Diagnostics

- PuTTY/WinSCP
- IP addresses and management
- Alias IP addresses and DHCP
- Setup and configuration files
- Program Updater
- Gathering logs
- MCS backup and restore

Locations

Our training venues are located within one hour of major broadcast hubs and are well served by public transport.

Calrec's headquarters are midway between Manchester and Leeds, while our training room at Audiotonix is in Chessington, Surrey, less than an hour from central London.

Both venues have an Apollo, Summa and Brio available at all times, although other requirements can be accommodated in advance.

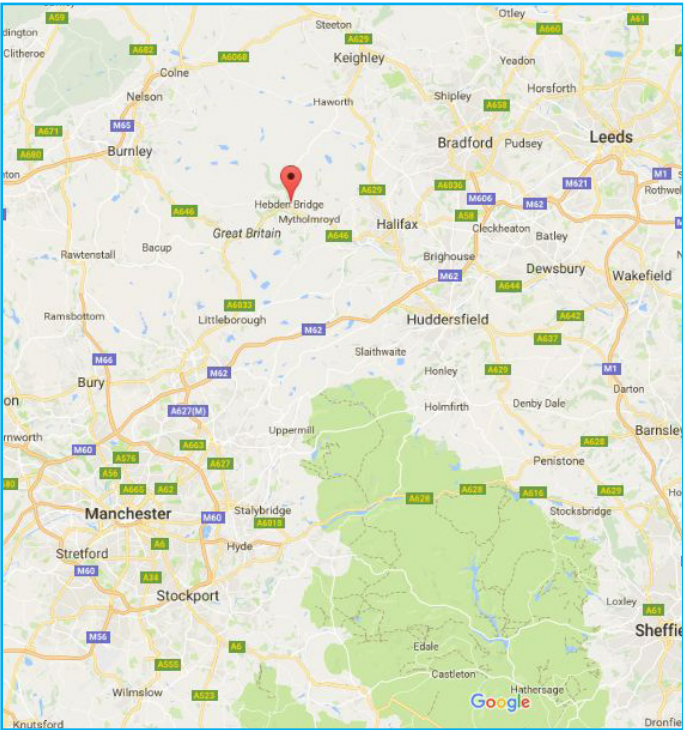
For more infromation on any of our courses, or to talk about tailor- ing a course to suit your specific requirements, please contact us at training@calrec.com

Hebden Bridge

Hebden Bridge is served by three trains an hour from Manchester Victoria and from Leeds and the journey takes no longer than 45 minutes.

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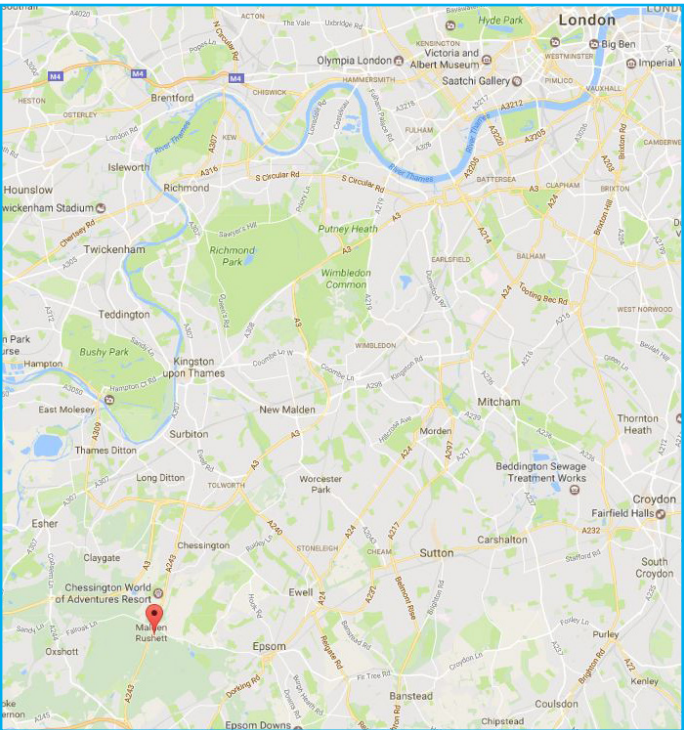


Chessington

Trains from London Waterloo to Chessington South are every 30 minutes and the journey time is only 36 minutes.

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