CLYDE BROADCAST

THE RADIO PEOPLE

SYNERGY

Integrated Digital Broadcast Centre

clydebroadcast.com

who we are, what we do

a unique proposition

Clyde Broadcast are experts in the design, specification and installation of radio studios and radio stations.

As well as manufacturing a range of our own analog and digital broadcast audio products, we have access to all leading makes of equipment and can tailor solutions to meet specific customer requirements of any size or budget.

We offer a comprehensive range of services including consultancy, equipment specification and procurement, project management, installation and training.

We can assist with locating studio premises, in building the studios, with the specification of studio to transmitter link and transmission equipment, even with program consultancy.

We have designed and equipped stations throughout the UK and Europe, in The Middle East and Far East, throughout Africa and the Indian sub-continent, as well as in Australia, China, Russia, the Ukraine and the US.

whoever you are

Whether your platform is FM, AM, DAB, satellite, cable or the internet - or any combination, whether you are a commercial or a state broadcaster, whether you are a community group or educational establishment, whether your audience is measured in millions or hundreds, whether you want a single studio or an entire network and whether your budget is large or small, we will be able to create a solution to meet your needs.

We have experience of all station formats, and are equally happy working in analog or digital domains, with an understanding of the workflows associated with newsrooms, multitrack recording, digital production, archiving and asset management, live assist and automated broadcast.

Most importantly we have a fantastic team of highly capable and enthusiastic staff, ranging from system engineers, through carpenters to software gurus, installation technicians and trainers.

contents

CLYDE BROADCAST

The Radio People

the synergy concept

a new approach

SYNERGY represents a brand-new approach to equipping a radio studio or radio station.

The conventional method is to select the individual components – the main ones being the mixer and the 'playout' system (hardware and various software applications) – then to 'integrate' or make them work together as a complete system.

This can either be undertaken by station engineers, or by hiring an external system integrator, and can often be quite challenging – with plenty of scope for 'passing the buck' between suppliers of individual items when something fails to work as anticipated!

The Synergy concept is very different – a single product which combines the functionality of a state of the art digital broadcast mixer with a complete suite of integrated broadcast applications – offering some really unique and innovative user benefits which are totally impossible using the conventional approach.

who can use synergy

SYNERGY is extremely 'feature-rich', yet can be installed and operated by anyone, even without any technical expertise or broadcast experience. It is perfect for:

- National, Regional and Local STATE Radio
- Commercial Radio – FM and AM
- Internet Radio
- Educational Radio
- Community Radio

It is a particularly attractive solution for new start broadcasters with restricted budgets and little previous experience. However, it is equally appealing to established organisations where its many advanced features will be appreciated even by the most seasoned professionals.

The various SYNERGY components can be plugged together in a few minutes – as long as it takes to plug up a home PC or hi-fi system. Then, all you need to go on-air is to plug in a microphone or two, some headphones and speakers, and of course, connect a feed from SYNERGY to your transmitter or internet streaming PC.

what does synergy include

core components

SYNERGY is made up of the following CORE COMPONENTS:

1. Either one or two Control Surfaces (depending on how many simultaneous sources or inputs are required at any one time), offering either 8 or 16 faders.

2. A Master Processing Unit (MPU), a 4U rack-mounting box which is, effectively, a sophisticated digital mixer. This also contains loudspeaker and headphone monitor amplifiers, plus inputs for 4 Mics, 4 AES sources, 2 external Telephone Hybrids and an ISDN codec, plus 16 selectable stereo analog inputs (using optional Selector Modules) - IN ADDITION to four channels of playback from the SYNERGY PC.

3. An industrial PC with a large storage capacity, also rack-mounting, which runs the SYNERGY software, and is where the audio files are stored, together with User Profiles and set-up information. This also contains high quality digital soundcards for replaying the audio files which have been recorded onto the PC.

4. A 22" Flat Touchscreen monitor which operates in conjunction with the Control Surface, selectable between various software 'Modules'; a second screen, dedicated to production applications is also available.

5. A suite of integrated software modules corresponding to the various processes required to produce and broadcast radio programs.

6. Optional Guest Remote Control Units for use in stations with a high speech content.

These components are described in more detail elsewhere in this publication.

packages

Synergy studio and 'station' packages are available, as described elsewhere in this publication, and Clyde can also supply complimentary equipment – transmission systems, outside broadcast equipment, acoustic treatment and power conditioning, with or without installation, commissioning, training and support.

synergy's hardware

control surface

The Master Control Surface (MCS) has 8 'channel strips' (faders) and monitor and talkback controls.

Each source can be freely assigned to any fader in any combination, and each user may store and recall their preferred settings.

For situations where more than eight sources are required simultaneously it is possible to add a Fader Control Surface (FCS) with a further 8 channel strips.

master processing unit (mpu)

The MPU is the 'engine' which undertakes audio processing – in effect a digital audio mixer.

It has all of the audio inputs, outputs and interfaces, and is controlled by the MCS/FCS and touchscreen.

synergy pc and soundcards

The rack-mounting PC stores the audio files as well as individual user preferences and configurations.

The 'PC uses 'industrial grade' components for greater reliability and incorporates fully mirrored 1Tb HDDs, ensuring that valuable content is always duplicated.

The PC also contains professional audio soundcards interfacing to the MPU.

touchscreen

The touchscreen provides a highly tactile and intuitive user interface, which operates in conjunction with the control surfaces.

synergy's software

acquisition
• Record
• RIP
• Download
• File Transcoding

production
• Music Edit , In/Out L nks
• Song Information
• Day Parting
• Multitrack Editing

scheduling
• Template Creation
• Template Population
• News Preparation
• ADS Importation

broadcast
• Live Assist Broadcasting
• Automated Broadcast
• Quick Record and Edit
• Podcast
• Studio change-over control
• Direct to Transmission
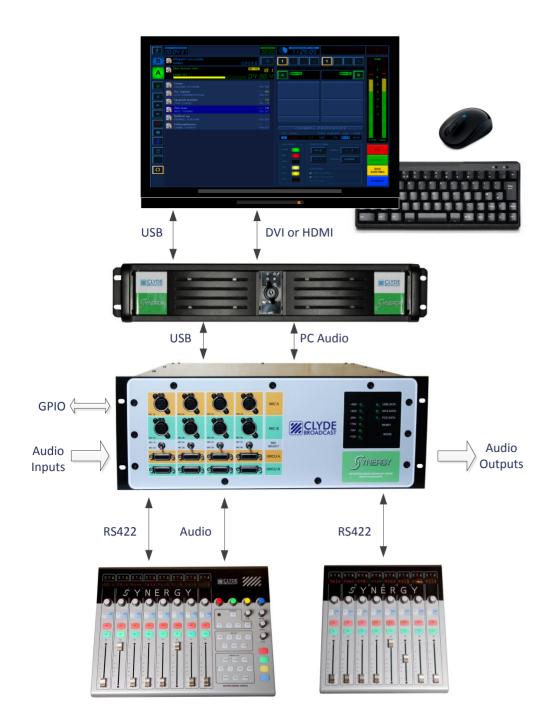• Music and ADS Reporting

system admin
• Global Parameters
• Reporting
• Configuration
• User Presets
• Mixer Set-up

plus (optionally)
• Traffic Scheduling
• Off-air Logging
• Studio Indicator Display System

the synergy studio

USB — DVI or HDMI

USB — PC Audio

GPIO

Audio Inputs

Audio Outputs

RS422 — Audio — RS422

synergy studio packages

For some organizations, particularly those with internal engineering resources, it may be that purchasing the core Synergy components is all that is required, with the engineers sourcing, installing and configuring the support equipment – CD players, mics, speakers, phone interfaces, furniture etc.

For organizations who prefer a 'one stop shop' approach, we offer fully pre-wired studio packages.

the bronze studio package

This Self-Op package includes the Synergy Core Components plus the following:

- 3 x Cardioid condensor microphones
- Arms and stands for above, with shockmounts
- 3 Pairs Beyer headphones
- Headphone amplifiers with individual volume controls
- 1 Pair monitor loudspeakers (powered from the Synergy MPU)
- 1 x Pro CD Player with remote start
- 1 x BB3 Telephone Balancing Unit with mobile phone and Optional GSM interface
- 1 x Lumion Mic live/On Air Indicator
- 2 x Guest 'Cough' button panels
- Bronze contemporary technical furniture – equipment cabinet, main and side table top
- All cables and connectors for the above

the silver studio package

This Self-Op package includes the Synergy Core Components plus the following:

- An additional control surface, providing a total of 16 freely assignable channels
- 4 x Cardioid condensor microphones
- Arms and stands for above, with shockmounts
- 4 Pairs Beyer headphones
- Headphone amplifiers with individual volume controls
- 1 Pair monitor loudspeakers (powered from the Synergy MPU)
- 2 x Pro CD Player with remote start
- 2 x BB3 Telephone Balancing U nits with mobile phones and interfaces
- 2 x Lumion Mic/On Air live Indicators, for inside and outside of studio
- 2 x Guest 'Cough' button panels
- Silver contemporary technical furniture – equipment cabinet, main and side table top
- All cables and connectors for the above

the optimum configuration

bronze or silver

With Synergy, there is a pool of inputs (also called 'sources') which may be freely assigned to faders, in any combination in any order, and 'User Profiles' created for each presenter. This means that in general you need far less faders than sources.

The Bronze package, with 8 faders, tends to be more suited to applications where large numbers of inputs are not required simultaneously. Although it is very easy to re-assign different sources to faders, when a studio has many sources the Silver package is often preferable.

In stations where space is at a premium, or budgets are tight, the Bronze package is often chosen for the Production/Back-Up studio. The Silver package also has two equipment cabinets, to accommodate the additional source equipment.

Both Silver and Bronze packages are complete systems, supplied with carefully selected support equipment, supplied as a fully functional integrated solution.

Should customers have specific equipment preferences, or require additional equipment, these can easily be accommodated.

self-op or tech-op

The Silver and Bronze studio packages described previously are both designed for the 'self-op' mode of broadcast, whereby the presenter or D J operates the equipment himself, with guests and co-presenters sitting 'across the table', in the same studio.

This is very popular with commercial stations. An alternative style of broadcast, traditionally favoured by state broadcasting organizations or where there is a large speech content in the programming, is referred to as 'tech-op'.

In tech-op broadcasting the equipment is operated by a technician, often accompanied by a producer, with the presenter and guests located in an adjacent room, usually connected via a vision panel/studio window.

Both Silver and Bronze packages can be converted to tech-op mode by the addition of a Talks Studio package. In simple systems the Talks Studio generally works into a designated studio (which is really acting as its control room), but in more sophisticated stations it may be possible for the Talks Studio to be able to work with two or more control rooms, allowing greater flexibility.

synergy's mixer

inputs and outputs

Synergy's MPU has plenty of inputs and outputs in addition to the feeds from the PC, which are:

2 x Playlist Channels and 2 x Cart-Players, each with dedicated fader control, plus a dedicated Prefade/Cue output which automatically triggers the mixer's monitor section for easy access.
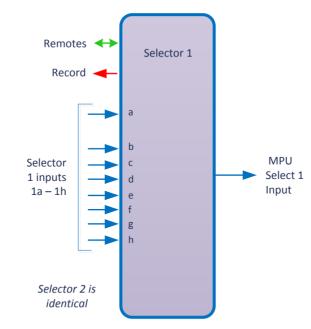
Inputs include:

- 8 x Mic inputs, with equalisation
- 2 x TBU inputs, with remote Divert control and equalisation
- 4 x AES inputs, each with GPI/O for controlling connected equipment
- 3 x Stereo analog line inputs, with GPI/Os for controlling connected equipment
- 16 x Stereo analog line inputs using optional Selector Modules (across 2 faders)

Synergy has several mix buses:

- Stereo Program, Record, Aux and Cleanfeed
- 2 x Mono Cleanfeeds and stereo PreFade

Plus plenty of outputs:

- Analog Program, Rec, Aux and 3 x Cleanfeeds
- 7 x freely assignable AES outputs
- 4 x headphone outputs (with power amps) for guests
- D J headphones (with amps)
- Separate Control Room and Studio Speakers outputs
  – line level AND power amps

Remotes ↔ **Selector 1**

Record →

a
b
c
Selector d
1 inputs e
1a – 1h f
g
h

→ MPU Select 1 Input

Selector 2 is identical

connecting external equipment

It is very easy to connect additional sources to Synergy's MPU. Each input has individually configurable remote interfaces to allow either fader or button control from Synergy's mixer control surface.

even more inputs...

In many studios there are certain sources which are only required occasionally, and it seems wasteful to dedicate an input channel exclusively for their use.
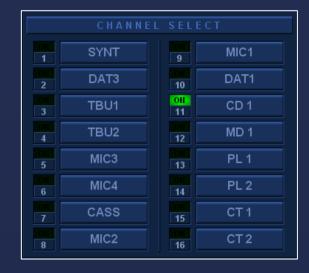
The normal way of dealing with this is via a pre-selector – some form of switch to which infrequently used sources are connected, the output of which has a dedicated fader.

Synergy's MPU can accept two switcher modules, which feed Selector Inputs 1 and 2, as shown opposite.

Each Selector has eight stereo line level balanced inputs. Additionally there is a balanced output available on each 'a' input connector, providing a buffered feed from the mixer's Record bus.

The required source is selected from the mixer control surface, using the rotary encoder on the Selector Channel, with source names displayed in the channel strip, or via the touchscreen.

Typical sources to the Selectors could include the output from other studios, the output from phono preamplifiers, tie lines and feeds from TV and satellite receivers

CHANNEL SELECT

1	SYNT	9	MIC1
2	DAT3	10	DAT1
3	TBU1	ON 11	CD 1
4	TBU2	12	MD 1
5	MIC3	13	PL 1
6	MIC4	14	PL 2
7	CASS	15	CT 1
8	MIC2	16	CT 2

synergy's mixer functions

navigator buttons

Synergy uses colour coded menu buttons to navigate between different functions. These buttons are context sensitive, and may be activated using either the touchscreen or the control surface .
More commonly used functions are available at a 'higher level' in the menu structure, with facilities required less frequently embedded more deeply. This provides a very simple yet effective user interface, without relying on use of keyboard and mouse.

channel controls

SYNERGY's control surface is deliberately uncluttered, with large, silent- operation illuminating push-buttons, all of which make it less daunting for new users and helps to minimise user errors.

The full-length fader is conductive plastic, for a smoother feel and longer life, and the rotary control above the buttons has a multi-purpose role, normally controlling channel gain, but selectable to adjust pan/balance, aux send and in the case of the Selector option, channel source.

The clear red digital display above this control, which normally indicates the active channel source name, displays the values associated with alternative functions – really simple!

The ASS button (ASSIGN) opens a window on the touchscreen which shows currently selected Channel Properties, with the functions of the Navigator buttons changing to allow adjustment of BUS Routing, SOURCE Selection and EQ settings.

monitor and talkback

The section to the right of the Master Control Surface accommodates the Cue Player controls (at the bottom) and above this is the Monitor and Talkback section.

This provides selection of the monitor source – the Program, Record or Aux outputs, plus an External Input – typically fed from an off-air receiver, and affects the signal being sent to the control room speakers and DJ headphones.

SPLIT and Auto PreFade monitor modes are available.

Synergy has an internal talkback mic and buttons to route talkback to the three cleanfeed outputs and to the studio feed – to both speakers and guest headphones.

making life easy

preview player

It is possible to view Information associated with a particular item (either in the Playlist or Library), and listen to that item via the mixer 's monitor system. These functions are accessed using the Navigator buttons – either on-screen or via the control surface.

Intro and Outro buttons on the control surface allow the beginning and end of an item to be monitored, and using a 'scrub-like' action it is possible to change the Cue or start point of a selected item (for the next play only).

It is also possible to change the pitch of the item – useful for beat-matching during live segues.

In the Auto PF mode Cue audio is automatically routed to the mixer 's monitor system, and the onscreen meters 'split' to show the level of the item being prefaded. Note also that information relating to start and end fade characteristics is displayed, as well as an indication of the rms level of the item. This is used in the AUTO mode to automatically yet unobtrusively match the level of successive songs to ensure a smooth transition and constant output level.

virtual faders

It is possible to create 'events' in a Synergy playlist which control mixer faders, not physically, but ' virtually '. This is an extremely useful tool particularly in automation, where, for example, a fader controlling the feed from an external news service may be opened and closed at the appropriate time without any manual intervention.

This arrangement also allows several stations to share common programming and interject 'localised' content such as news, local ads and jingles.

quick record and edit

'One Touch' Functions allow quick recordings to be made and edited whilst simultaneously broadcasting from a playlist. This is an incredibly useful function which really has to be seen to be believed – at the touch of a button Synergy switches the mixer 's bus routing to ensure that only the wanted sources get recorded and that everything gets put back again after the recording without any omissions!

Another button press automatically opens the editor and loads the audio track (or tracks) allowing an on the fly edit and, moments later, the edited item can be dragged into a cart player or even into the playlist for instant broadcast – as if by magic!

genuine multi-tasking

on-air modes

On Air has three main modes – Live Assist, AutoPilot and DTX. Switching between Live and AutoPilot allows successive audio items within the playlist to segue automatically, with the 'outlink' point of one item triggering the next item to play, and so on.

In AutoPilot it is still possible to make changes to the current playlist, and the faders and buttons on the control surface remain active, whereas the DTX mode, which is password protected, prevents changes to the playlist and inhibits the playlist fader and buttons on the control surface.

DTX also controls the mixer 's bus routing, allowing an operator to broadcast a premade playlist whilst SIMULTANEOUSLY using THE SAME workstation to make recordings to the local PC from the mixer 's record output, without any possibility of accidentally interfering With the program output which is being broadcast.

background productions

Whilst in the DTX mode the only source routed to the mixer's program output is the PC's playlist audio. ALL other sources are de-routed from the PROGRAM mix bus, and auto-routed to the RECORD bus.

This means that whilst a system is on-air, broadcasting in the DTX mode, the same workstation can be used to record and edit, to rip new content, to create reports, and to prepare and populate new program templates and schedules.

This means that overnight for example, whilst broadcasting in automation, the Synergy studio can be used for a variety of production applications – representing fantastic value and return on investment – unparalleled with any other system, irrespective of price.

Multi-tasking can also be undertaken whilst in the AUTO or LIVE ASSIST modes, though more care needs to be taken not to interfere with the broadcast output!

Note that whilst Synergy is being used for background production activities, the PC's resources are always prioritised to the all-important On Air activity, ensuring that this is never compromised.

workflow tools

Irrespective of the size of the station or its format, the processes involved in creating content and broadcasting programmes are the same.

Synergy has software tools, or 'modules', associated with each of these processes:

ACQUISITION → PRODUCTION → SCHEDULING → BROADCAST

acquisition

This is the starting point; content can be added to the Library either by ripping from CDs, downloading from the internet or other network-connected locations, or by recording through the mixer – the feed to Synergy's PC is taken from the mixer's RECORD output. This is used to make recordings via microphones and other studio sources.

Synergy is supplied with AUDACITY record and multi-track editing software. As a cost option it may be supplied with ADOBE AUDITION. CD ripping software is included, with CDDB data access, providing a suitable internet connection is available.
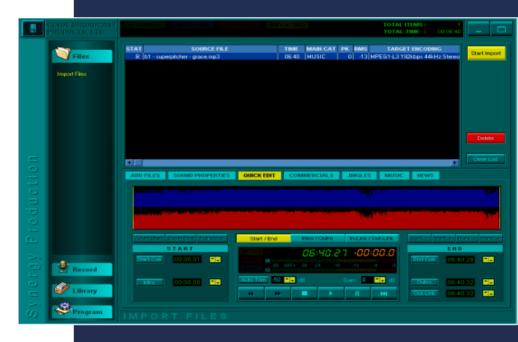
production

The Production process allows content to be edited and to have information added – track and artist details for example, plus in-link and out-link information, as well as providing the ability to convert between the myriad of commonly used digital file formats – called 'transcoding'.

Unlike many systems which require all audio files to be of the same format, SYNERGY allows mixed format playlists.

The PRODUCTION module is also used to set-up and manage the Library, and to ensure that all content is in a suitable format with all associated data and information.

Batch processing is supported, and the Production module may run on either the On Air (broadcast) PC or any other network-connected PC.

workflow tools cont.

scheduling

The tool used to build Playlists, either manually or by creating and populating Templates, is the Scheduler. Once a Playlist has been created, for a specific program, it is saved and can be 'loaded' into the On Air module when it is time to broadcast that particular program.

All content – music, jingles, ads, interviews etc are saved to Synerg's Library. Items can be selected from the library and placed into 'playlists' as digital audio files. These files are 'played back' as required, corresponding to the running order required for individual programs through Synergy's mixer, which also has inputs for microphones, CD players and telephone hybrids etc.

broadcast

Synergy's ON AIR module is the tool used to broadcast. Playlists, usually created in advance, are 'loaded' into the On Air module and individual items are played out under control of the mixer, across two faders, allowing 'crossfades' between successive items, in a similar manner to operating with CD players or turntables in a conventional studio. Alternatively an AUTO mode may be selected which plays items back to back, allowing unattended operation.

Additionally the On Air module contains to two' Cart-Players' – each with six 'slots' into which individual content may be loaded and played at will, as opposed to within a prescribed order of the playlist, thereby allowing the presenter a degree of creative freedom.

These are often used for jingles and trailers, and in some stations for playing pre-recorded News items. The Cart-Player outputs appear on a further two faders, making Synergy's playback extremely flexible.

Content from the playlist can be started either by using a fader or pushbutton on the control surface.

The screenshot to the bottom right shows the full On Air screen, divided into a number of zones. On the left is the Playlist area, and to the right of this are the Cart Stacks. On the extreme right are the meters, with timers across the top of the screen.

Many of buttons are touch-sensitive, but can also be activated using the PCs mouse.

The four Navigator buttons at the bottom right of the screen are also mimicked on the Master Control Surface. These buttons open pop-up windows used to access advanced features, and the function of the buttons change according to the operation selected.

summary of software functions

- Recorder and Multitrack Editor tool
- CD Ripping tool with CDDB
- Transcoding between various digital file formats
- Music production tool with Day-parting
- Music information tool
- Library management tool
- Report generator
- Traffic log importation tool
- Template creation and population tools
- News Preparation and Presentation Tools
- Manual and automated music rotation control
- Voice-tracking tool
- Ability to set artist, track and album separation
- Live Assist and Fully Automated modes
- Cue Player with ability to adjust level and pitch of Items, controlled from mixer
- Automatic switching of mixer monitoring when Cue/prefade is active
- DTX Mode – allows secure use of system whilst broadcasting in automated mode
- Quick Record Mode – including automatic bus routing control – whilst On Air
- Quick Edit mode – ability to open Quick Recordings within Editor within On Air mode
- Podcasting Mode
- Playlist controlled via two faders
- Ability to delete and insert new tracks into playlist
- Touchscreen, mixer control surface, mouse and keyboard operation
- Drag and Drop of audio from Library
- Advanced Search facilities within Library
- 2 x Cart Stacks, each with individual fader control
- Each Cart Stack to have six Slots
- Three Cart 'play' modes – manual, Semi and Automatic
- Each Cart Stack to have 4 Pages, with the ability to load complete Cart Stacks from the Library

software variants

Version 1.6 software is aimed at educational users and community broadcasters, who generally do not require to broadcast 24/7.

V1.6 playlists are file-based, without any specific time reference, which means they can be started and stopped as required, at any time, and more than one studio can access the same playlist.

In contrast, V 2 playlists are time-synchronised, and it is only possible for one studio to 'own' a playlist – or LOG – at any time.

Ownership of the LOG follows the studio to transmission selection, so that whichever studio is on air at any time also owns the correct LOG.

V2 is more suited to state and commercial broadcasters operating on a 24/7 basis.

V1 software is known as the PRO version, with V2 referred to as ENTERPRISE.

Unlike many other software systems, SYNERGY has a once only payment at the time of purchase.

Upgrades are made available free of charge, though if assistance with installation of new software and training on new features is required, a charge will be made.

mixer functions

- 8 x Mic Inputs with parametric equalisation and remote cough/talkback/cue/mic-live buttons and indicators
- Unlimited EQ Pre-sets
- 4 x AES Inputs with comprehensive opto-isolated GPIO interfaces
- 2 x TBU inputs with remote CALL and DIVERT indication/control
- Multiple Stereo Analog Line Input S electors
- Inputs assignable to any fader
- 8 or 16 faders
- Unlimited User Configurations
- Stereo Program, Record and Aux Mix Buses
- 1 x Stereo and 2 x Mono leanfeed Buses, with individual talkback
- Individual channel Gain/Pan/Aux level adjust
- Individual displays of Source Names
- On-screen display of Channel Properties
- On-screen display of Source Routing
- On-screen display of Bus Routing
- Ability to create individual user TelRec configurations
- Analog and AES Program, Record and Aux outputs
- 4 x AES Record outputs
- 4 x Guest headphone amplifiers with remote level control
- Control Room speaker outputs from internal power amplifiers
- Studio speaker output from internal power amplifier
- DJ Headphone output
- Separate Mic Live outputs for Control Room + Studio speakers
- On-screen metering with Split metering mode following Monitor Selection with prefade overide
- SPLIT and Auto Pre Fade monitor modes
- External Monitor Input
- Integral talkback/cue loudspeaker
- Integral talkback microphone
- Talkback to cleanfeeds, studio speakers and guest headphones
- Comprehensive remote control of source equipment - fader and button control
- Control of digital audio playback from PC across FOU R faders, plus separate Cue/PreFade input from PC

multi studio systems

two-studio single program stations

For stations requiring more than a single studio, we recommend our RS2 and RS3 station packages. These are based around Bronze and Silver studio packages, with a number of workstations and an optional voice-booth or talks studio, for stations where there is a high speech content, who prefer to operate in a 'tech-op' as opposed to 'self-op' style.

A 'CTA' – Central Technical Area – contains shared equipment and provides the interconnection point between different areas and the interface to the outside world.

central content storage

In single studio applications all audio content (music, jingles, ads etc) is stored on the Synergy On Air PC. In two studio systems it is possible to use one On Air PC as the main 'server', with the other as a 'back-up', holding a copy of content on the main server.

Both studios have access to content created in either facility. For applications with more studios, or where there are workstations (see below), we strongly recommend the use of a dedicated content server with a dedicated broadcast network. Further information on this topic can be found in our 'Synergy Content Server and Network publication, available from our sales office.

workstations

There are many tasks which need to be undertaken that do not need to tie-up a studio, and they can be undertaken at office-type workstations. These include news gathering, news scripting, the addition of new music, program packaging and editing, and music and traffic scheduling. SYNERYGY's Admin, Record, Production and Scheduling software can run on almost any PC, and in conjunction with a minimum of external equipment, offer a highly cost effective method of saving valuable studio space.
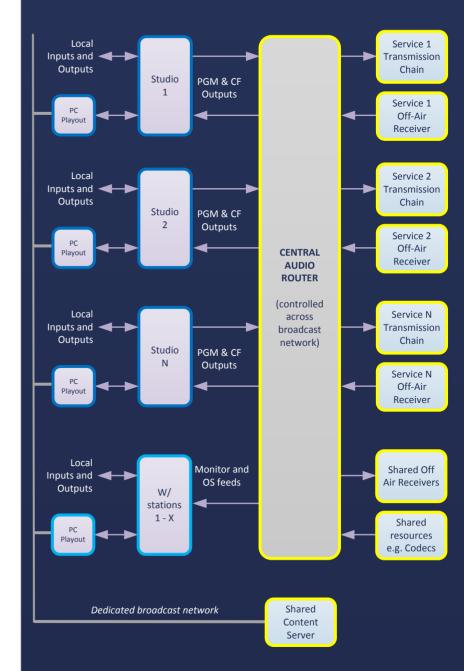
Optional Traffic and Billing software, integrated to Synergy's scheduling and on air tools is also available. These workstations communicate with the broadcast studios and central content server via a dedicated broadcast network.

multi-studio multi-network systems

For more complex requirements, for example where there are many studios feeding different programs to different networks or 'services', bespoke configurations are generally required.

These are based on fairly standard Bronze and Silver studio packages, connected to each other and to the outside world via an audio router, which usually resides in the station's CTA, with a control screen similar to that shown opposite.

multi-studio multi-network systems

a case for standardisation

one size can fit all!

Traditionally, radio stations have been equipped with one or more 'on air' studios, and one or more 'production' studios. A small station would typically have one of each.

In this approach the on air and production studios have different equipment, with the on air studio being used to broadcast, and the production studio used to record and edit programs for future broadcast.

The major drawback of this approach is that the production and on-air studios cannot back each other up – you simply cannot broadcast live from a traditional production studio – at least without major compromises which significantly affect the on-air output and programming capability.

With Synergy all of this changes. ALL studios can be based around the same core technology, all equipped with one or two Synergy control surfaces, all connected via a broadcast network to the same content server.

This is because Synergy is equally well suited to broadcast AND production, so can be used for either or both purposes.

This has many advantages, such as operational familiarity – all of your presenters and producers will be equally at home in any studio, it eases training and support, but perhaps most importantly, it provides total redundancy/back-up – if one studio has a problem, simply move to another.

So, our station packages are made up of a number of similarly equipped studios packages, each capable of on air and production use.

Finally, Synergy is totally unique in that by virtue of its genuine multitasking architecture, it is possible to be on air, broadcasting in an automated mode, AND AT THE SAME TIME, IN THE SAME STUDIO, to be undertaking production tasks, such as pre-recording interviews, ripping new audio or creating new schedules.

In a multi-studio environment, studios are connected to the CTA using Clyde's 'Station Hub' Interfaces, which allow inter-area cabling to be installed in advance of Clyde's site attendance, using standard CAT5 computer cables, which are readily available anywhere in the world.
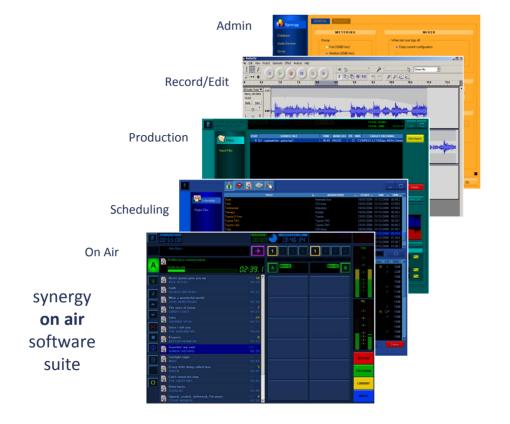
This considerably reduces installation time and costs and ensures a consistent and reliable installation.

typical configurations

broadcast/on-air workstations

Admin

Record/Edit

Production

Scheduling

On Air

synergy
on air
software
suite

Four channels of 'playback' from the PC, plus Cue, and Record to the PC

Local audio inputs and outputs

These require one or two Synergy Control Surfaces, a Synergy MPU and a Synergy PC, plus the usual array of ancillary equipment – mics, monitoring, indicators etc.

The PC is supplied with a dual channel professional soundcard and a full suite of pre-loaded software applications and modules.

Broadcast workstations may be used to for either LIVE broadcasts, for the playback of pre-recorded material **and** for the PRODUCTION of new material.

The Broadcast Workstation Software includes:

- Audacity Record and Edit
- CDDB CD Ripper
- Synergy Administration
- Synergy Production
- Synergy Scheduling
- Synergy On Air
- Plus (optionally, to order) Natlog Traffic software

The broadcast workstation may be used for live or automated broadcasts AND for production purposes – (defined as the pre-recording and preparation of content for future broadcast).
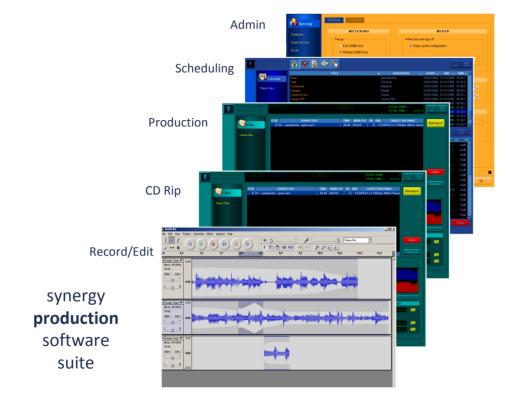
Any number of broadcast workstations may be used together.

In radio stations where there is only a single service i.e. one program or transmission output, only one broadcast workstation will be used as the transmission source. Other broadcast workstations will be used for production or standby transmission functions.

Broadcasting may be either LIVE or AUTOMATED, and whilst in the automation mode (called DTX) it is also possible to use the studio to undertake recording, ripping, production and scheduling activities, without affecting the broadcast signal.

In some radio stations, where there is no dedicated server, the PC in one broadcast workstation may be designated as the Main Server, with another PC designated as the Back-Up Server.

typical configurations cont.

production/back-up workstations

Admin

Scheduling

Production

CD Rip

Record/Edit

synergy
production
software
suite

Single
record and
playback
audio feed

Synergy Production PC

Local audio
inputs and
outputs

The main purpose of the Production/Back Up Workstation is for 'production' – recording, editing, production, scheduling and admin, with optional traffic tools i.e. the creation of content which will be broadcast at a later date.

It has restricted broadcast functionality, using the Back Up On Air tool, which has a single channel audio output.

The Production Workstation can be used with an existing analog or digital mixer , or with a Clyde Deskmate, ideally with a Synergy Production PC. The Production Workstation Software includes:

- Audacity Record and Edit
- CDDB CD Ripper
- Synergy Administration
- Synergy Production
- Synergy Scheduling
- Emergency (stand-by) Synergy On Air (with restricted functionality)
- Plus (optionally, to order) Natlog Traffic software

emergency on-air software

The Production PC typically has a single audio output which feeds the associated mixer, allowing a single (stereo) channel of record and playback.

This means that the two 'Playlist' audio channels and two 'Cart' players from the PC mix together onto a single composite output, and if audio is present on each of these channels there will not be individual level control – the mixer only has one fader which controls the mix.
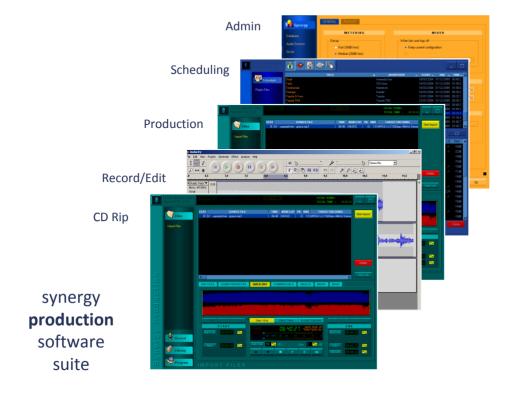
However, under emergency conditions this is usually adequate, particularly as often the workstation will be set to the AUTO mode, where playback on a single fader is adequate.

Note also that typically production mixers are not suitable for continuous use in on-air applications.

typical configurations cont.

office/news/general purpose workstations

Admin

Scheduling

Production

Record/Edit

CD Rip

synergy **production** software suite

Desktop or tower PC

DESKMATE – desktop audio facilities

The Office Workstation is mainly used for scheduling and production applications, for ripping new music and for traffic and billing; it can also be used in Newsrooms for the creation of news bulletins.

The Office Workstation can use an existing PC and relies on the PCs internal audio facilities.

The Clyde Deskmate provides useful Desktop audio facilities for radio newsrooms and works very well with Synergy Office Workstations.

The Office Workstation Software includes:

- Audacity Record and Edit
- CDDB CD Ripper
- Synergy Administration
- Synergy Production
- Synergy Scheduling
- Plus (optionally, to order) Natlog Traffic software
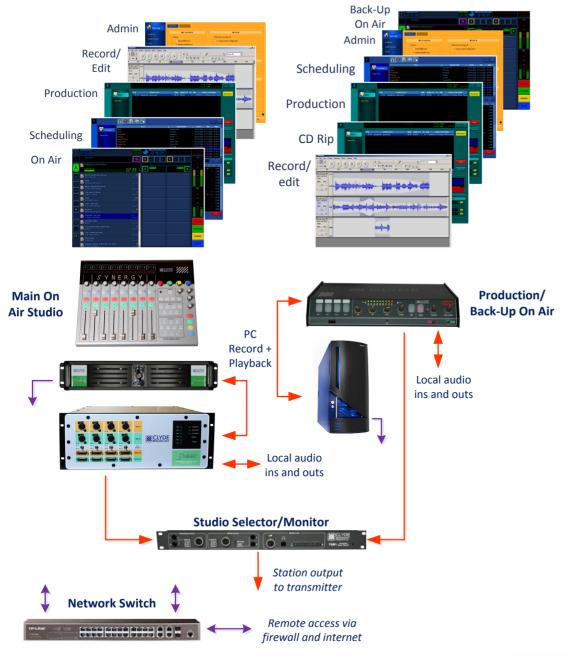
desktop audio facilities

With the addition of a Clyde Deskmate, an office workstation can often be used to accomplish tasks that would otherwise require the use of a studio.

Designed to sit underneath the computer monitor, Deskmate includes simple audio mixing am monitoring, with a multi-input source selector.

Deskmate incorporates an internal loudspeaker, a telephone hybrid for recording phone calls, an in-built USB soundcard for direct connection to virtually any PC/laptop, an a very flexible microphone amplifier with automatic gain control – ideal for use by journalists.

Deskmate is supplied with a microphone/headphones combo unit, and has the ability for direct connection of USB memory sticks or portable recording devices, for downloading field-gathered material to the PC, for editing etc.

typical configurations cont.

a simple two-studio station

Admin

Record/ Edit

Production

Scheduling

On Air

Back-Up On Air

Admin

Scheduling

Production

CD Rip

Record/ edit

Main On Air Studio

PC Record + Playback

Production/ Back-Up On Air

Local audio ins and outs

Local audio ins and outs

Studio Selector/Monitor

Station output to transmitter

Network Switch

Remote access via firewall and internet

In single studio applications the broadcast workstation can also be the server. In small stations with only a few workstations it is also possible to nominate a workstation PC as the server.

In simple two-studio stations, the studio workstations can be used to back up each other, providing content security.

In larger systems, or where greater robustness and guaranteed service is required, the use of a dedicated server is highly recommended. This also makes it easier to add additional workstations as and when required.

The diagram on the left shows a typical two-studio station block schematic. In this arrangement one PC is designated as the Main Server, the other as the Back-up. At regular intervals the back-up makes copies of all content on the main machine, using the Synergy Back-Up Software.
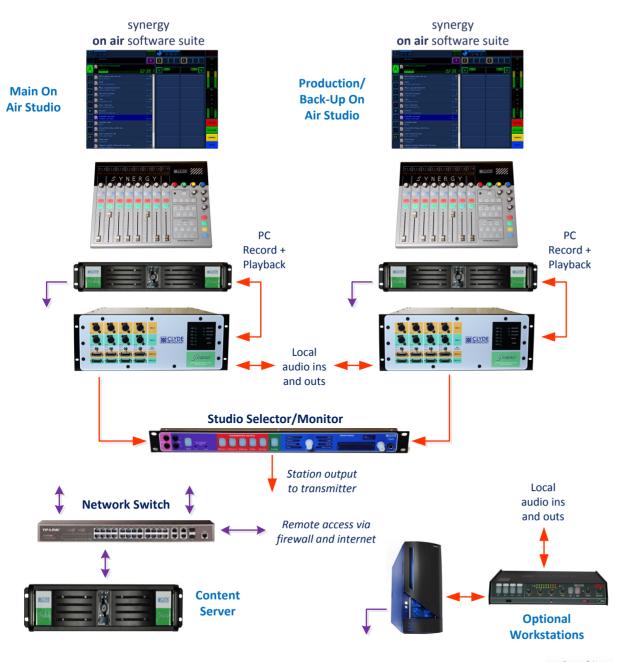
Synergy uses an SQL database, which is a 'living' entity and is constantly being updated. For this reason the 'copy' process goes through an intermediate stage, which means that the back-up is never fully up to date, depending on the frequency of back-up, typically every hour.

SID – studio indicator display

SID is a highly visible and very effective means of displaying studio information, as well as enabling synchronous station-wide time and date distribution, saving a fortune compared with the cost of traditional studio indicators and sync and display time systems.

typical configurations cont.

a more sophisticated two-studio station

synergy
on air software suite

synergy
on air software suite

**Main On
Air Studio**

**Production/
Back-Up On
Air Studio**

PC
Record +
Playback

PC
Record +
Playback

Local
audio ins
and outs

Studio Selector/Monitor

**Station output
to transmitter**

Local
audio ins
and outs

Network Switch

**Remote access via
firewall and internet**

**Content
Server**

**Optional
Workstations**

The diagram to the left shows a more sophisticated two-studio station block schematic. In this arrangement there is a dedicated server and workstation, and all content is saved to the server.

Clyde's Linux server has fully-mirrored mirrored hard-drives, and content is saved to both drives simultaneously.

synergy messaging system

SYNERGY incorporates an embedded messaging system, used for communication between different studio and workstation PCs.

This allows information relating to 'log ownership', studio to transmitter routing status, time, date and studio status to be shared.

In simple two-studio stations the messaging system is used to facilitate an onscreen 'Offer and Accept' studio change-over system, with software-controlled outputs from the MPU used to pilot an external audio switcher.

Synergy OnAir - Live Log Control

OWNERSHIP

OFFER   ACCEPT   OFF AIR

Offer expires in : 5 minutes

STATUS

Active Service : 1   Active Clock : 12:00 …

Current Owner : <local>   Mode : ASSIST

Close

The messaging system is also used with Clydes' ARCS software – Audio Router Control System, which manages station-wide audio routing in a multi-studio multi-service environment, controlling an external router – analog or digital, with however many inputs and outputs are required.

In these situations a second studio touchscreen is used for control and status display information, and this can also be used for outside source and monitor selection (as well as studio to transmitter routing), and to pilot a profanity delay unit.

what else is required

equipment

Synergy Bronze and Silver are complete digital radio studio packages, which incorporate the essential components needed to create and present great radio programs.

In addition to this, you will need a transmitter, either FM or AM, and, depending on the location of your transmitter, an STL (studio to transmitter link). If you intend streaming to the internet, you may need a dedicated streaming PC (in some instances the Synergy PC will suffice).

You may also want to use an FM or AM processor, to give your station a unique sound and improve its 'loudness' compared to other stations. An off-air receiver will allow your presenter and engineering staff to listen to the broadcast signal, to check quality and to make sure they are still broadcasting! (this is included as standard in our RS station packages).

Depending on the regulatory body in your country, you may require to record or 'log' your off-air feed for a period of days, weeks or even months. This requires a further PC and inexpensive software.

If you want to broadcast live phone-ins, you may be required by your license regulator to use a Profanity Delay.
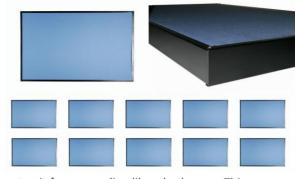
If your station intends to sell advertising, you will need some planning, scheduling and billing software, which interfaces to Synergy's Scheduling module.

These items can all be supplied by Clyde as part of a tailored solution to meet your needs.

a room

A room with internal dimensions of 3.5m x 3m is generally adequate for a self-op studio with presenter and two guests – a typical Bronze Package. For a Sliver, with a presenter, three guests plus a producer, the room needs to be about 4m x 4m.

Ideally the room will have good sound insulation – meaning that noise from outside will not be heard inside, though this is only really important for stations with high speech content.

The room should have some form of internal acoustic treatment, to stop it from sounding like a bathroom. This can be achieved in a number of ways and is relatively inexpensive – we recommend the use of Clyde's very effective yet easy to install CATS panels.

who uses synergy

broadcasters

Synergy systems are used by broadcasters of all sizes, all over the world. This includes state broadcasting organisations, commercial stations and community groups.

The Ghana Broadcasting Corporation has over 40 Synergy studios – in their Accra HQ and throughout the country.

The Kenyan Broadcasting Corporation has embarked on the roll-out of Synergy studios for their 18 national and regional stations.

In Cameroon, India, Libya and Nigeria, national broadcasters use Synergy studios.

Internationally, numerous private FM and internet stations broadcast with Synergy, and in the UK many programs which are broadcast by the BBC originate from Synergy equipped studios.
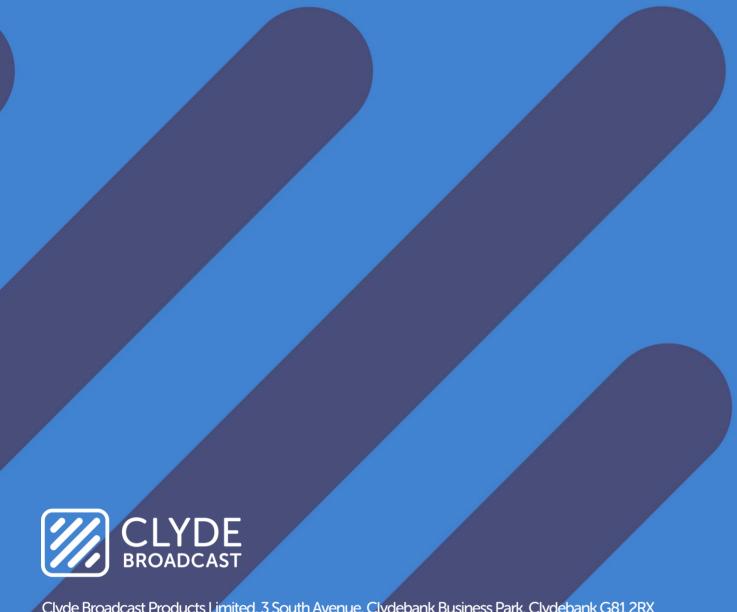
education

Synergy is equally well suited in educational environments, where its end to end functionality and ease of use makes it an exceptional training tool.

IGNOU, the Indira Ghandi Open University , uses Synergy studios for their Gyan Vani distance learning project.

The Kenyan Institute for Curriculum Development create and broadcast their school radio programs from a suite of Synergy equipped studios and a Synergy equipped OB van.

Universities and colleges throughout the Indian and SE Asian sub-continents and the Middle East use Synergy, and in the UK alone over 250 schools, colleges and universities use Synergy based studios.

CLYDE
BROADCAST

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