

# OXYGEN 4 DIGITAL

## DIGITAL BROADCAST CONSOLE



## COMPACT DIGITAL CONSOLE

- Internal digital bus routing system
- Less than 0,5 milliseconds global latency
- 24bit/96kHz maximum sample resolution
- EQ and Dynamics on all processing channels
- Real time info displayed on every module
- GPIO I/O automation - Fader, Switch, Cue start
- Sample rate converters on all digital inputs
- Built-in SD card reader

# OXYGEN 4 DIGITAL CORE

The 19" rack is the heart of Oxygen 4 Digital.

All audio processing and routing takes place in this unit.

You can find 4 MIC's, 2 Mono analog and 5 Stereo analog Inputs, 7 Stereo Digital Inputs and Outputs all with sample rate converters.

You have dedicated analog outputs for PROG, SUB, AUX, CRM and PHONES.

The control surface and DSP engine can be separated by up to 5 metres using a 15 way D-sub ended cable.

Signal processing takes place in one DSP. Processing uses precise floating-point calculations at a wordlength of 32 bit.

All audio signals throughout the console preserve their 24 bit resolution from the input conversion. Even 16 bit data streams, like CD-players, have 24 bits reserved..



## OXYGEN 4 DIGITAL

### APPLICATIONS:

- Digital Desktop mixer
- Reporter desk
- Production & editing studio
- Remote controllable audio work places

**Oxygen 4 Digital** is a fully digital mixing console powered by the latest Texas Instruments DSP processors, with 18 digital and analogue inputs, a crosspoint router, 32 bit processing, sampling rates up to 96kHz, sample rate converters on all the digital inputs, and both EQ and dynamics on every channel.

All those tools can be accessed from the control surface, but they can also be controlled from a PC attached to the console via an IP network.

Like most other similar products, **Oxygen 4 Digital** follows the system architecture of a rack mounted digital 'engine' and a separate 'control surface' with 8 fader.

### INPUT & OUTPUT CAPABILITIES

#### INPUTS

- 6x stereo digital inputs (AES3)
- 1x stereo digital input (s/p-dif optical or coax)
- 6x stereo balanced line inputs
- 1x stereo unbalanced line input
- 4x balanced mic inputs + Inserts

#### OUTPUTS

- 6x stereo digital outputs AES3
- 1x stereo digital output s/p-dif optical + coax
- 1x stereo Program analog
- 1x stereo SUB analog
- 1x stereo CUE analog
- 1x stereo AUX analog
- 1x stereo CRM analog
- 2x stereo PHONES analog

### INPUT ROUTER

The audio-paths within **Oxygen 4 Digital** are programmable due to the presence of an input router.

This eliminates the need for an external patch-bay. The input matrix is situated between the input modules and the DSP.

It allows a custom configuration of the various inputs into the 4 stereo processing channels.

## CONTROL SURFACE: Channel Strip

**Oxygen 4 Digital** control surface is divided into two distinct areas on the conventional lines of input and master sections. The input channels comprise eight identical strips.

Starting from the bottom we have a full size fader which obviously controls the level for whatever source is routed to that channel, but in software it can also be configured to perform fader start, red light switching and monitor muting.

Above and to the left of the fader, a group of eight LEDs show status information for that strip.

The two larger ones indicate which of the two main output busses the strip is routed to: Programme or Sub.

This signal is always post-fade and post the channel's On switch. The 'Sub' buss would usefully provide a stereo clean feed to (for example) external codecs.

The next group of three indicators is dedicated to the aux buss and the assignable EQ and dynamics. The aux buss is stereo and may be selected independently on each channel as a pre or post-fade send.

Each **Oxygen 4 Digital** channel may also be assigned a 'dynamics' control function a combined compressor-limiter with a single control.

The EQ provides 3 bands, each with a range of 2 octaves. The pre-set centre frequencies of 120Hz, 1.2kHz and 12kHz are sensible choices, but they may be changed in software should other values be preferred.

A simple three LED meter is provided on each channel indicating audio levels at -20, 0 and +9dB.

Each strip supports two large illuminated buttons labelled 'On' and 'Cue'.

The On button functions pretty much as you would expect, and it may additionally be configured to provide a machine start command.

The Cue button enables a pre-fade listen, and this too may be configured in software for various other functions.

At the top of the channel are the two most obviously digital controls: a single rotary encoder and a 2 line LED alpha display.

The latter shows the currently assigned input on the top line, while various options are displayed on the lower line.

The encoder may be turned or pushed, depending on what function is currently selected.

For example, switching to an output buss is achieved by pushing the knob to switch the selected buss routing on or off, whereas setting an input level is a rotary function.

## CONTROL SURFACE: Master Section

The right hand master section is topped by a pair of LED level meters, scaled from -36 to +9dB.

Below this, two banks of switches cover the function assignment to the channel encoders, and source selection for the monitors.

There are also level controls for the monitor speakers and headphones - the latter with a socket on the rear of the control surface.

A memory card slot on the control surface can be used to save desk configurations for instant recall, and individual users may be granted different levels of access to the various desk functions - an excellent solution to situations where 'finger trouble' is a problem.

**Axel Technology** also supplies a couple of programs to help new users get around the desk.

The first of these is a simple utility to adjust the channel equalisation.

The second is an Active-X applet that generates a virtual console on your computer screen, showing all of the desk's settings and enabling real time adjustments too.

With this utility, it is possible to control the digital engine from any PC connected to the same network as the console.



CHANNEL STRIP



MASTER SECTION



OXYGEN 4 DIGITAL 4 + 4 CHANNELS

# NETWORK OPERATION

## Oxygen 4 Digital is a stand-alone mixer.

That means that there is no need for a PC during operation.

But to make all the settings you can connect your console directly to your PC by a cross-link cable or connect your **Oxygen 4 Digital** to your local network (Straight CAT5 UTP cable) and use its PC interface to communicate with the console.

By using the Ethernet connection you have the possibility to control **Oxygen 4 Digital** from every workplace in your network.

**Oxygen 4 Digital** can receive an IP address via a DHCP server, or you can give a Fixed IP ! When this IP is known, you are able to manage the console features by software (HTTP web server or ActiveX object).

# OXYGEN 4 DIGITAL TECHNICAL SPECIFICATIONS

## GENERAL SYSTEM PARAMETERS

Level specs in dB Full Scale for digital and dBu for analog data.

0dBu=0.775Vrms

Sampling rate: 32kHz, 44.1kHz, 48kHz, 50ppm (when internally synchronized).

Headroom: 20 dB

## A/D and D/A CONVERTERS

A/D Burr Brown/Texas Instruments 24 bit Delta Sigma

Dynamic range: typically 112 dB

THD+Noise: <-102 dB

D/A Burr Brown/Texas Instruments 24 bit Advanced Segment

Dynamic range: typically 113 dB

THD+Noise: <-100 dB (0.001%)

## INPUT & OUTPUT

### LINE INPUTS

Input sensitivity: -20dB to.+20dB

Line inp. bal 10kOhm

CMRR: Line input max.. gain: 50Hz 50dB

### DIGITAL INPUTS

AES/EBU (AES3), S/P-DIF, Optical (Toslink)

16/20/24 bit 32kHz to 96kHz (built in sample rate converter)

THD+N: -105dBfs @1kHz, 0dBfs

Frequency response: 20-20kHz, 0.1 dB

Input impedance: 110 Ohm (XLR) 75Ohm (cinch)

### MICROPHONE INPUTS

Mic INP. Bal. 2kOhm - 128dB (60dB gain range)

CMRR: Mic input max. Gain: 50Hz 75dB

Phantom is switchable +48volt

### LINE OUTPUTS

+4dBu / -10dBV electronically balanced or optional transformers.

### DIGITAL OUTPUTS

AES/EBU/AES3, S/P-DIF, Optical (Toslink) active at the same time

16/20/24 bit, 32kHz to 48kHz (System clock)

Output level: 2 to 5 volts

Output impedance: 110 Ohm

Clock output: 75 Ohm TTL

## EQUALIZER

LF: +/- 18 dB @ 120Hz Peaking

MF: +/- 18 dB @ 1200Hz Peaking

HF: +/- 18 dB @12000Hz Peaking

## SYSTEM CLOCK

System clock internally 32kHz, 44.1kHz, 48kHz, 50ppm.

Frame clock out: BNC 75 Ohm TTL

Frame clock in: BNC 75 Ohm terminator switch, TTL 32kHz to 48kHz

## REMOTES

All channel remotes are isolated on relays and interfaced on 9 pin Sub-D connectors.

More info: isolated PhotoMOS Relays, Ron-max 12ohm, I<sub>max</sub>=200mA, 24V<sub>max</sub>

## DIMENSIONS AND WEIGHT

Desktop layout: Width=260mm Height=85mm Depth=370mm

19"rack in/output unit: Width= 485mm Height=88.5mm Depth=300mm

Notes: 0dBu=775 mV. All measurements were made on an Audio Precision system Two.

Pictures and technical specs in this leaflet are provided for information purpose only and are subject to change without further notification (Ver. 3.1)