A·X·U·M – Digital Studio Platform
Routing, Control & Mixing

The SOLUTION for now and future requirements:

Axum is the solution for broadcast studios for the demands of today and many years in the future. Not only will the **Axum** be the "Backbone" of your operation but a complete broadcast studio platform easily adapted to forthcoming technical developments. Designed for imminent growth, it can be expanded to suit your company's wishes. The following pages will allow you a look and virtual feel of the future available today.

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Maximum return with minimal investments:

With competition breathing down your neck and a fortune invested in Announcers, Journalist, program material, and equipment, the design team at **D&R** developed the **Axum** so you can start with a small budget and as demands come along expand the "heart" of your broadcast studio. Built into the foundation of the **Axum** is a "Design for future needs" technology that will deliver the advanced studio solution you require for your multiple broadcasts for today and future needs.

MambaNet^{TM}……. A "Future Proof" network platform:

Most of us remember those days without internet…… with the **D&R Axum**, a similar giant step can be made in your broadcast studio complex. Like most users of e-mail and browsing the Internet, you likely didn't care about the virtual world behind the screen known as the TCP/IP protocol. As new innovations come along, making connections to new work surfaces, processing or other equipment as easy as connecting a computer/PDA to your data-network is vital.
D&R introduces **MambaNet^{TM}** ……a protocol that runs over Ethernet (Level 2). As part of the engine in the **Axum**, this means you can make use of the IT skills and equipment standards already available in your company and automatically explore, recognize devices, and their functionality. Now that's what we call **"Future Proof".**

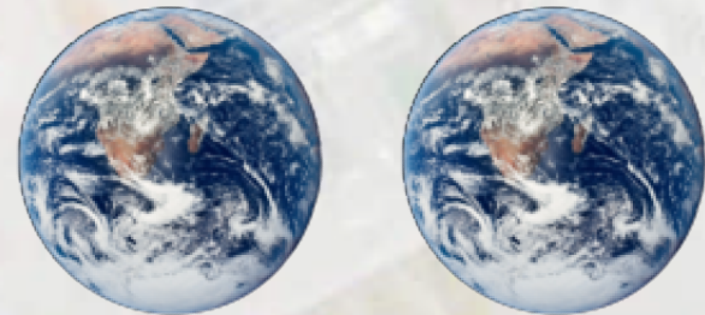# A·X·U·M – Digital Studio Platform
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Exceptionally flexible for advanced applications:

The **Axum** with its' network platform makes it possible to start with a simple and dedicated solution and as soon as you need more flexibility and/or functionality you can easily add new devices to your network. This delivers an ideal solution for equipment and more demanding applications of the future.

Reliability vs. Redundancy:

History has proven that redundancy is a beneficial way to solve reliability problems by duplicating critical parts like power supplies, but when building a system using many different components from different manufacturers, redundancy becomes virtually impossible and system reliability becomes very important. The systems of today depend on the connections to other components as well as the system components. Running in the background of the **Axum** platform, **MambaNet**™ is implemented on standard Ethernet and is compatible with all safety/security technologies available in the Worldwide accepted Ethernet network (e.g. spanning tree protocol, trunking).

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From virtual to a practical solution:

The Axum consists of several system components divided in two groups:

1. **Control surfaces**
   The **D&R Axum** is completely modular allowing your functionality requests to select from various control surfaces. As technology moves forward and your needs grow, other types of control surfaces will be designed in the future to give you the possibility to create the right layout for your individual requirements. As with all D&R products, user feedback is always welcome.

2. **I/O racks**
   An I/O rack is built using a 19" rack frame with a controller card (the engine), DSP card(s), I/O card(s) and power supply card(s).

An example of a starter system is to have one I/O rack and one control surface. If you require more control over your I/O's you simply add a control surface component to your networked platform. With the same simplicity you can add a new I/O rack to your networked platform to have a new mixing console for a different broadcast studio.

One network....... many work surfaces:

The concept of modular control surfaces fits perfectly in the virtual world of networking. With the D&R **MambaNet**™ network, you'll only need to determine what the 'perfect layout' for your broadcast studio should be by selecting the right control surface modules needed for your application.
When you connect the preferred surfaces to the **MambaNet**™ network, it is then possible to configure your system so the knobs and switches do what you want them to do.
With the (currently available) four fader Broadcast Panel and Control Room/Studio Panel, it is possible to create a small, medium, or large "easy to understand" on-air or production console.
This platform will become even more flexible as other smaller and larger control surfaces are added to the **Axum**. So keep up with the developments for the **Axum** on our website at:
 www.d-r.nl or contact your D&R Dealer or Distributor today.

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Defining your I/O modules

With the D&R Axum's modular concept, MambaNet™ controls the primary portion of the I/O rack. Each I/O card is shared in the network and can be controlled from the network. The I/O cards together with the rack will behave as a large Matrix in the network. If one or more DSP cards are inserted, your matrix will have mixing capabilities. Available I/O Cards are:
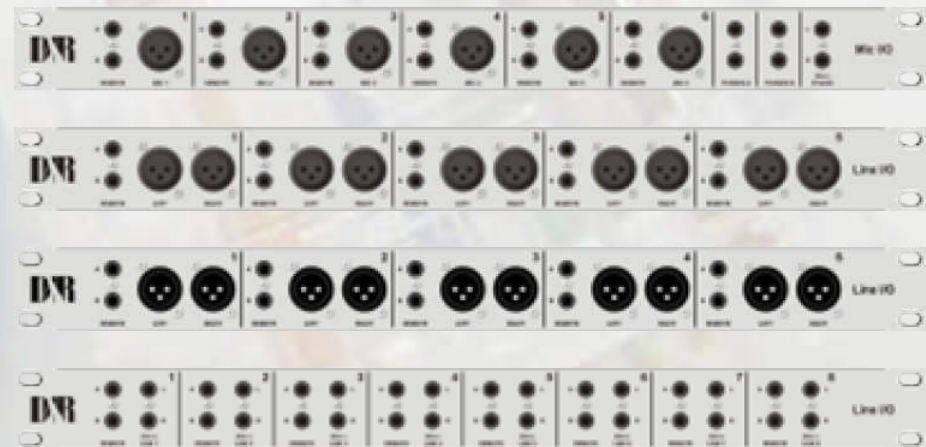
- Microphone inputs
- Line inputs
- Digital in/outputs
- Line outputs
- CRM/Phones outputs
- CobraNet in/outputs
- ADAT in/outputs

and more to come…..

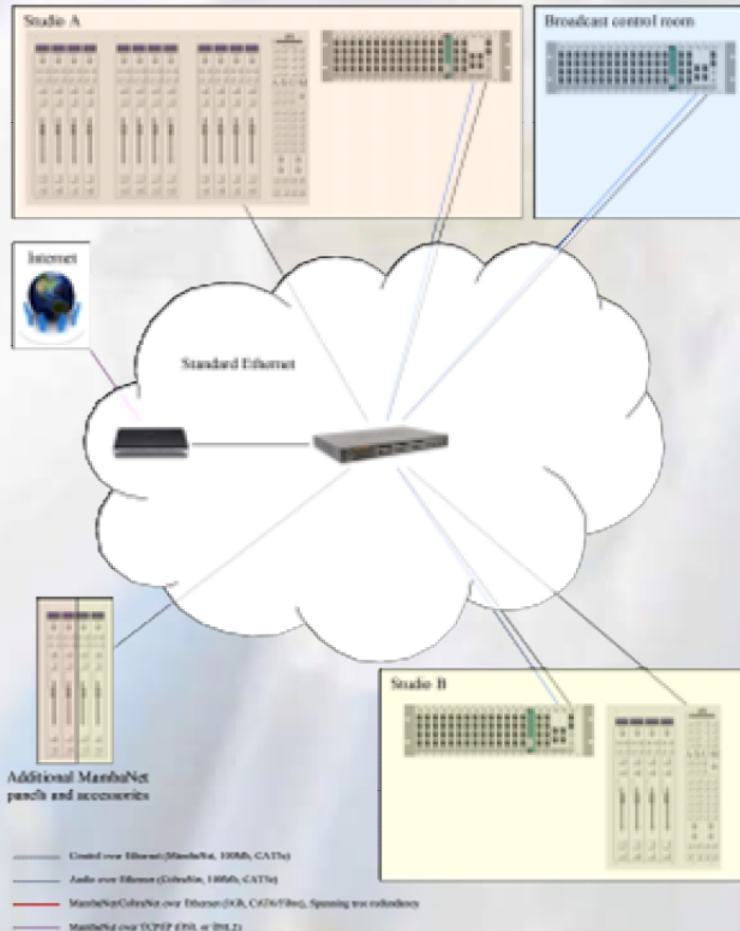**Rack-mounted system interface units:**

The defacto standard for interfacing audio components to I/O racks use RJ45 connectors with STP (Shielded Twisted Pair) cable. D&R used this breakout system in the unique **D&R AirMax** Digitally Controlled analog console with great success. The rack-mounted interface units have balanced ¼" Jacks and XLR connectors on the front panel and shielded RJ45 connectors on the back panel which are used to connect to the I/O rack. Below is an overview of some of the passive interface units.

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An example topology

This topology example shows a facility with a Studio "A" and Studio "B". Additionally, this facility has a separate central broadcast control room. The topology shows all required studio interconnections to share control and audio with each other. Patching audio between the different studios is done via CobraNet™. With **D&R's CobraNet-Manager™** management software, you can visualize and control the complete audio network.

The local audio (per studio) can be connected to the local racks allowing you to select the desired I/O cards in the racks.

The central control room Axum I/O rack can be controlled by any control surface connected to the MambaNet™ network. This gives you maximum control over all your sources.

You want more? Simply add more Axum system components to the network.

The Ethernet cloud can be filled with any Ethernet design your system administrator would want. An optional and valid solution is to have a network switch (Ethernet managed switch) in every studio booth. If requested, a redundant topology can be implemented in this set up.

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Maintenance, tech support, & staying up to date …

The **D&R Axum** utilizing **MambaNet**™ and **CobraNet**™ was designed as a long term solution to the needs of Broadcast facilities for future innovations and developments in broadcast audio and software. The **Axum** allows the Broadcast facility personnel to plan and implement their requirements from a large group of currently available components as well as future developed components. The latest software updates, hardware, and information will be available on the **D&R** website at http://www.d-r.nl or contact our main office sales department in The Netherlands. Although the Axum hardware and software network is easy to install and understand, one of the **D&R** system engineers can log on to your network and check your system from the **D&R** main office in minutes if needed.

Also available for download on the **D&R** website is a product/technical brochure and whitepapers for the **MambaNet**™ network.

The product/technical brochure gives you insight in the currently available work surfaces, panels, and I/O cards as well as their technical specifications.

The MambaNet™ whitepaper gives a look into the basics of the studio platform. This could be valuable information for your technicians and/or system/network administrators as well as other equipment manufacturers.
Feel free to contact us!

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