

UBEX

ULTRA BANDWIDTH EXTENDER



Wow!



Uncompressed Video Over IP

UBEX-PRO20-HDMI-F110

UBEX (Ultra Bandwidth Extender) is a new generation AV Over IP optical extender product line, transferring 4K UHD@60Hz 4:4:4 uncompressed video signals on a 10 Gbit Ethernet Network without frame latency.

Standard, certified 10 Gbps SFP+ optical modules are installed in the device, which are plug and play and field-exchangeable by the user. Modules can be duplex multimode/singlemode or bi-directional singlemode. The maximum reachable distance is ranging between 400 m with multimode modules (OM4) and 80 km with long range singlemode modules. In a typical application with a standard, non-blocking 10 Gbps Ethernet switch, it is necessary to use both directions of the link. The number of necessary fibers depends on the optical link speed and the optical module: for 10 Gbps one or two fibers, for 20 Gbps two or four fibers are needed.

One of the primary advantages of the new architecture is scalability.



Uncompressed
4K UHD@60Hz 4:4:4



Frame Detector
(Input signal analysis)



Pixel Accurate
Reclocking



Multilayer Signal Routing



Instantaneous Switching
without Signal Latency



Advanced EDID
Management



USB HID (KVM)



Reliability and Redundancy



4K Scaling

UBEX Ultra Bandwidth Extender



UBEX is an optical scaling extender which allows 4K UHD@60Hz 4:4:4 uncompressed signal extension with latency-free multistreaming. The device is designed to use Video Over IP transmission on a 10G Ethernet network, it has standard, 10 Gbps SFP+ optical modules installed, which are field-exchangeable by the user.

UBEX units can connect to create a complex network with the use of a standard Ethernet switch.

An UBEX-MMU-X200 Matrix Management Unit (MMU) is required to control and supervise a virtual matrix, which can be created by connecting UBEX units as input and output endpoints to an Ethernet switch acting as crosspoint.

One of the prime advantages of such new architecture is scalability: the virtual matrix created can have a virtually infinite number of endpoints, limited only by the number of open ports on the Ethernet switch used. Such a virtual matrix can be also extremely asymmetrical, as e.g. it could have only a few (or one) devices on the input side, while an almost unlimited number of output end units.

Using visually lossless compression, UBEX can extend two Full 4K UHD signals over a single, 10 Gbps Ethernet port. This generates substantial cost saving on the required Ethernet switch side, as with UBEX only half the router size is required compared to the needs of similar, 10 Gbps IP based architectures.

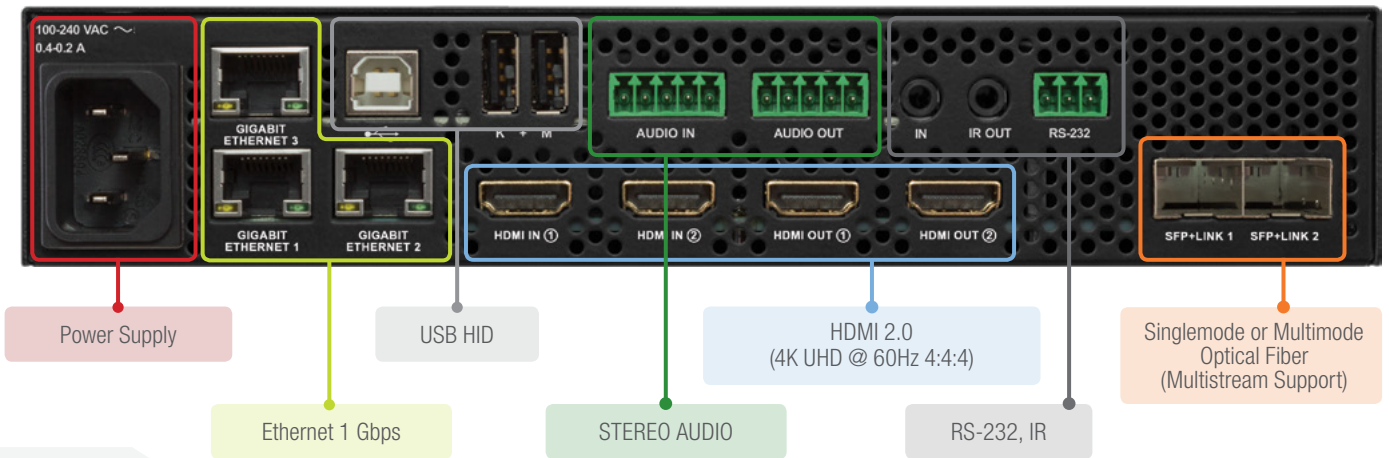
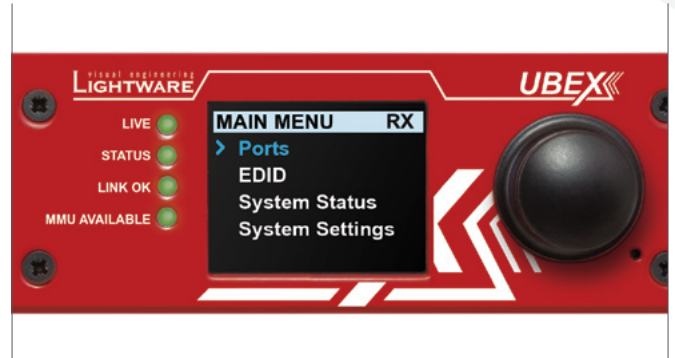
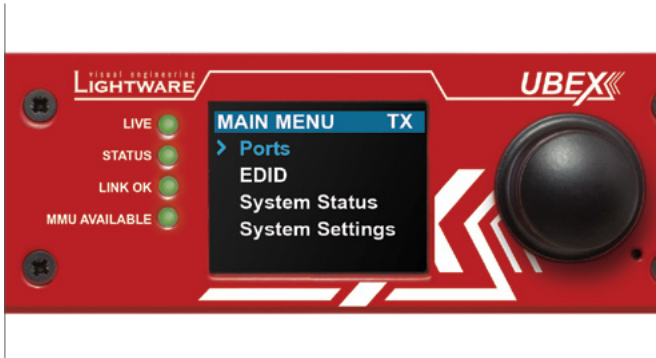
The UBEX design also favors dual-screen applications: each transmitter and each receiver handles 2x HDMI 2.0 video ports.

UBEX can also be used in a point to point setup as a conventional extender pair between endpoints. It is not required to use an Ethernet switch when point to point extension is required.

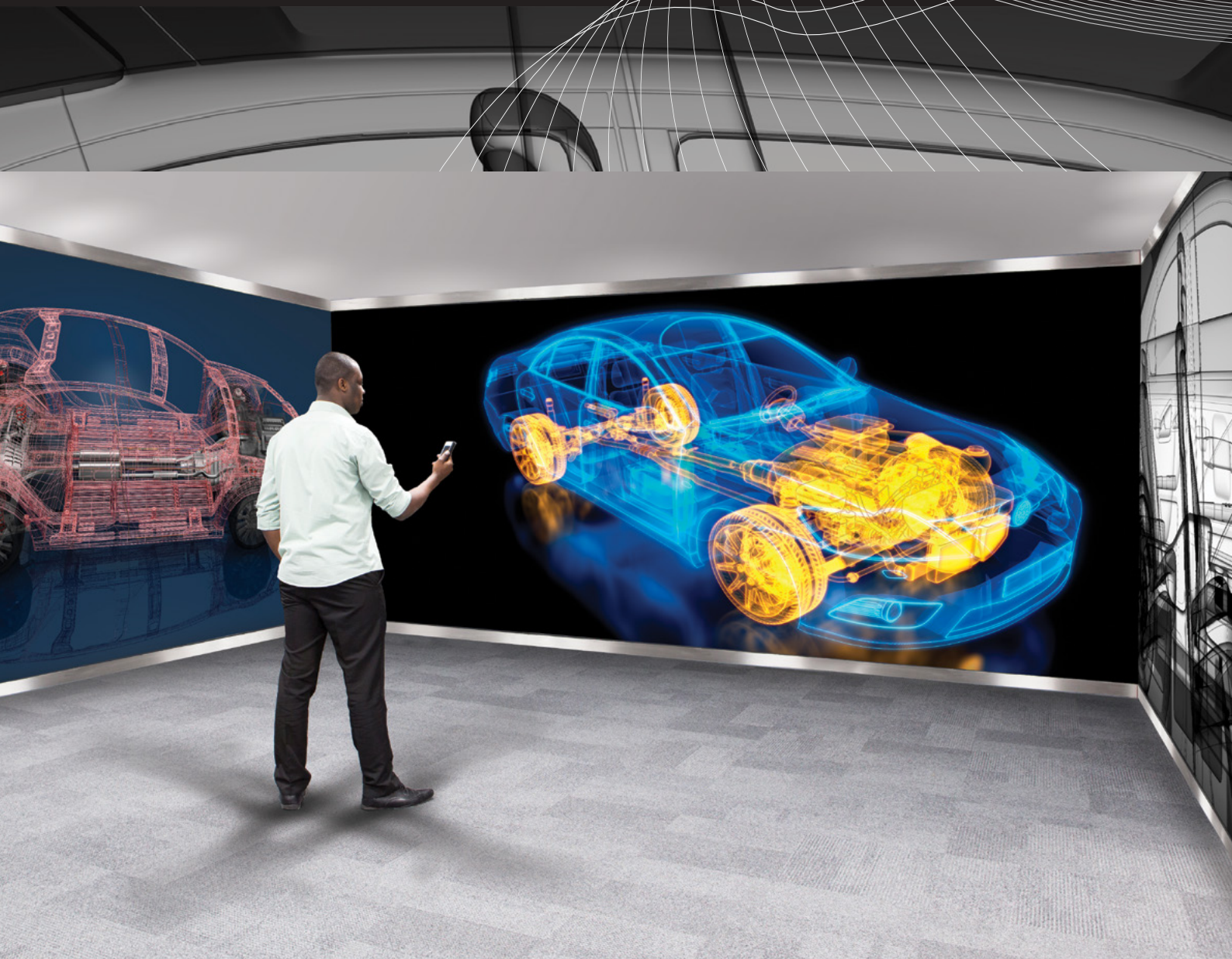
The maximum reachable distance is ranging between 400 m and 80km, depending on the type of singlemode or multimode optical modules installed in the device, and on the signal properties.

Highlight Features

- 4K UHD @ 60Hz 4:4:4 Scaler
- Multistreaming technology (multiple video transmission on a single optical link)
- Video Over IP OR Point-to-Point operation modes: UBEX can also work as a conventional extender, no Ethernet switch is required for simple extension
- Versatile operation modes: dual channel 4K transmitter or receiver or transceiver mode: sending and receiving signals simultaneously
- Operation modes can be changed by rebooting and selecting the desired mode
- Field replaceable SFP+ modules: up to Singlemode (SM) 80 km or Multimode (MM) 400 Meters
- Advanced EDID Management
- 10 Gbps on one (or two) fibers OR 20 Gbps on two (or four) fibers
- Configurable video compression
- Virtual Matrix mode with UBEX units connected to a central Ethernet switch serving as crosspoint, supervised and controlled by a UBEX MMU-X200 Matrix Management Unit
- Front panel jog dial push button and color display
- Front panel feedback LEDs
- Internal power supply and front-to-back cooling air trail
- USB HID (KVM)
- Balanced stereo audio connectors
- Optional control speed connectors (RS-232, IR)



3D VISUALIZATIONS



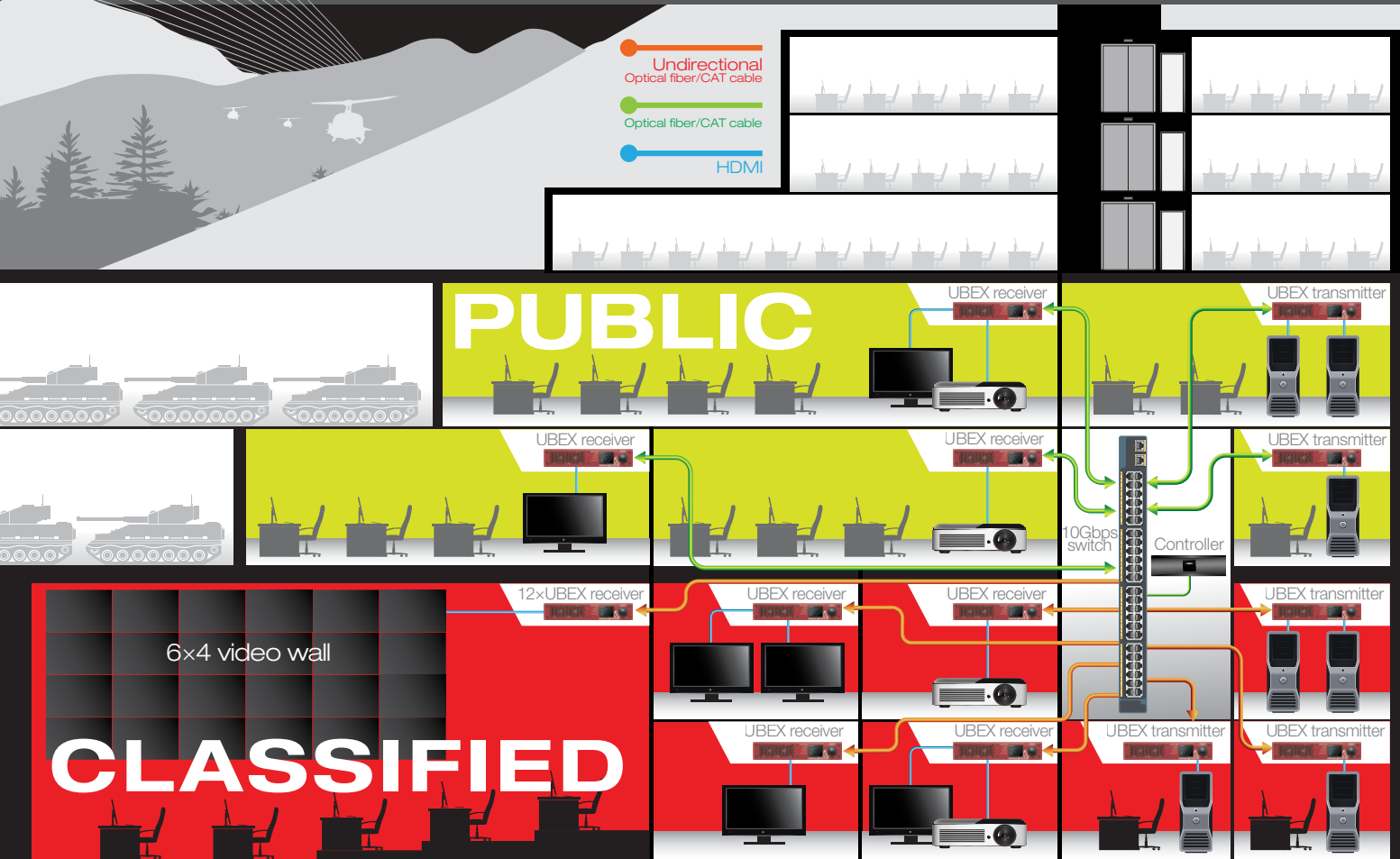
Visualization of data or concepts in order to expose meaning, increase understanding and help, or to actively contribute to designing in engineering all need low latency, high detail visual imaging.

Designing an architectural space that needs to be experienced before being built, or sometimes even a mere theory can also be better shared visually, employing virtual and augmented reality and stereographic 3D.

The speed, the color accuracy and the low latency video transfer provided by UBEX are key to 3D visualization that can greatly contribute to a wide variety of projects including 2D/3D/4D image analysis, scientific research visualization, 3D animation, 3D object scanning and also macro-photography and video, to list just a few of the possible applications.

An UBEX based medical visualization system can help examine human anatomy and reconstruct it in a real-time 3D environment for use in education, simulation, and training.

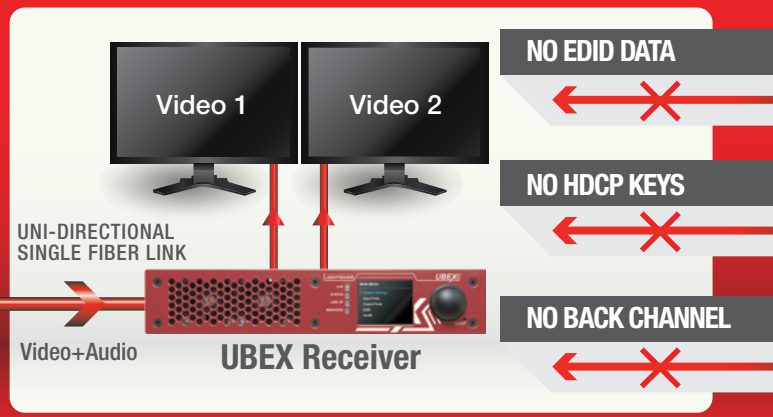
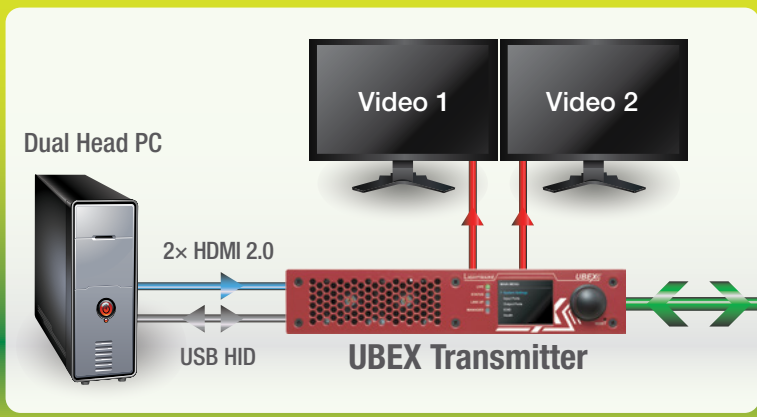
SAFETY - CRITICAL SYSTEMS



In a sensitive situation wasting a millisecond or failure to send a signal can be catastrophic. A UBEX based system provides fail-safe operation, can guarantee unidirectional, high speed data transmission and can be applied for unique purposes with special safety and security criteria including separate security zones and individually set privileges.

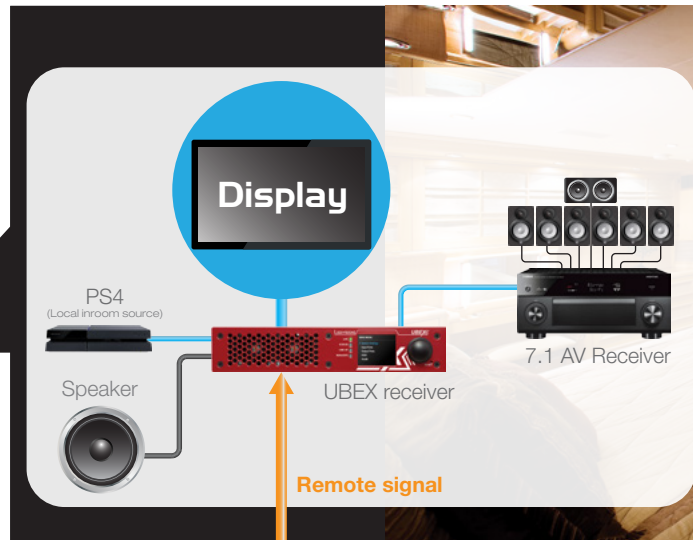
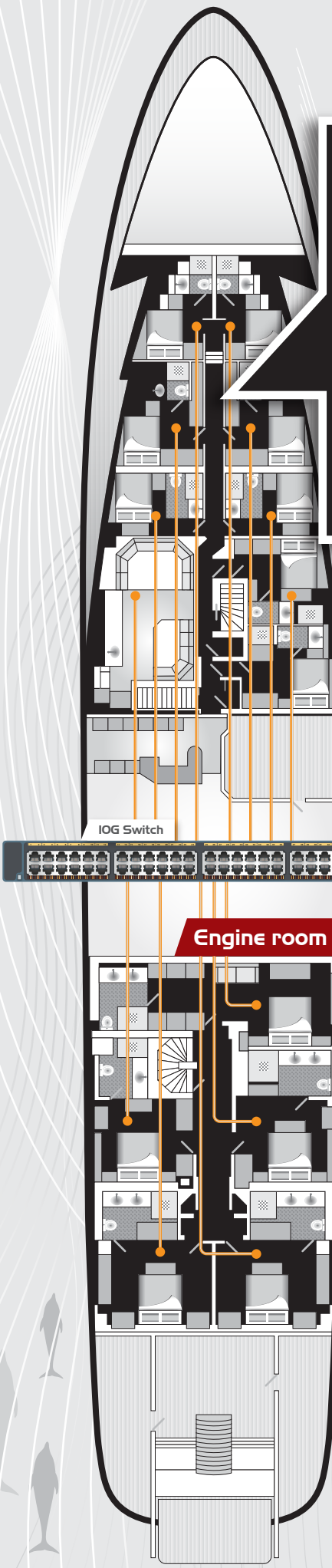
PUBLIC ZONE

CLASSIFIED ZONE

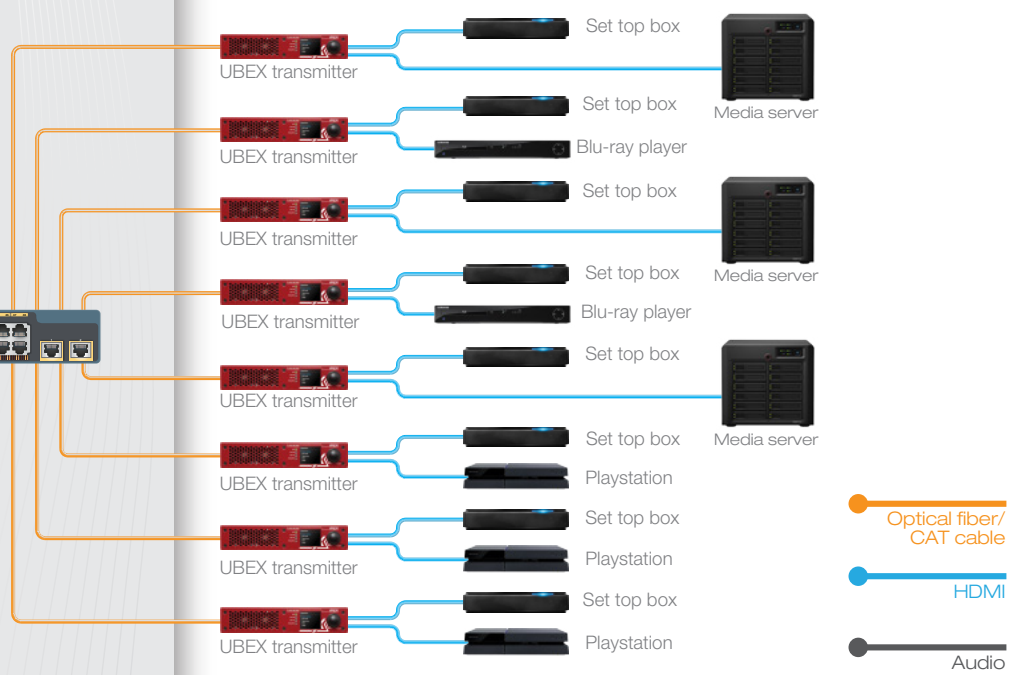


In a **data diode network** (also referred to as a unidirectional network) data travels only in one direction to guarantee information security. These networks are common in high security environments such as defense, electric power generation facilities, nuclear power stations and similar high security installations. Typically in these configurations two or more networks are connected with differing security classifications. The physical nature of unidirectional networks only allows data to pass from one side (low side) of a network connection to another (high side), and never the other way around.

MARINE APPLICATIONS



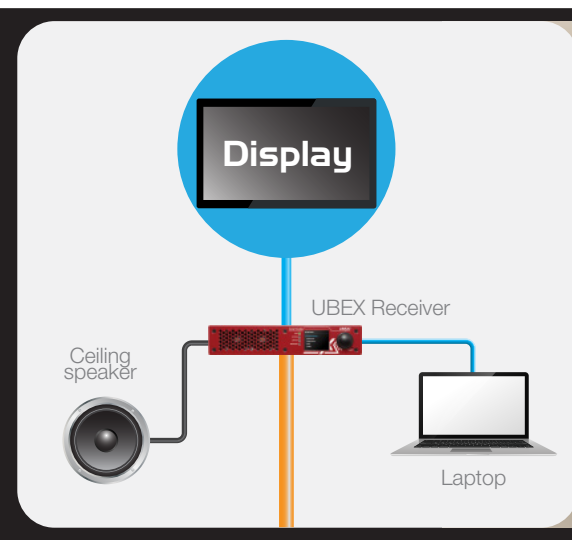
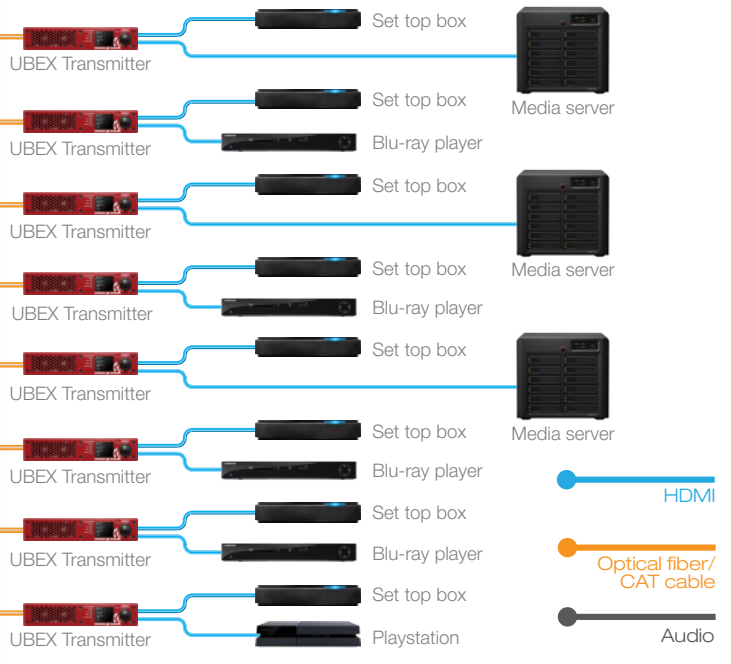
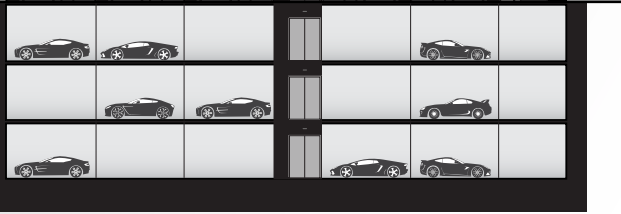
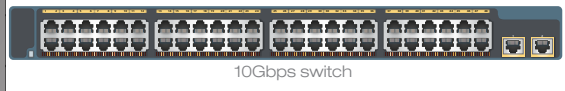
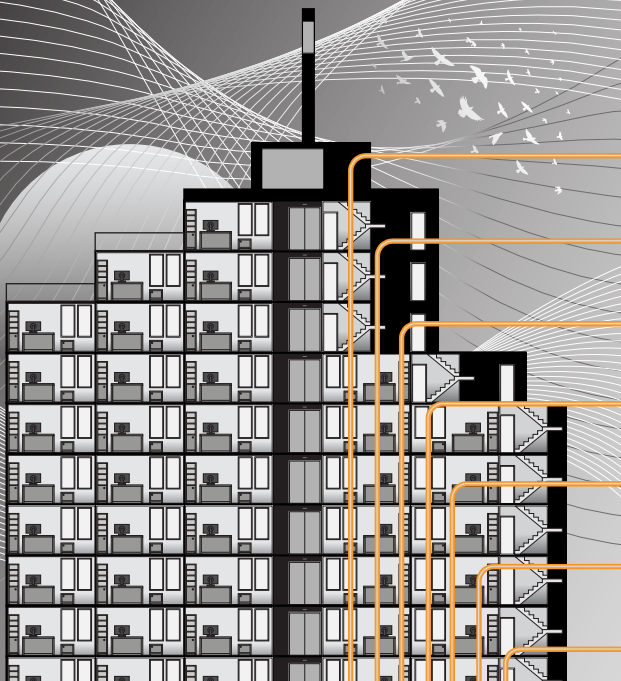
Bedroom



Designing and installing AV equipment on a yacht is a sensitive process. The installed system has to fulfill customer demands and possibly exceed them, and it is best if it's versatile and easily integrable with third party systems, devices and networks.

Based upon our previous experience gained at marine AV installations, we believe UBEX has optimal product properties and features for this purpose. It is particularly well applicable to yacht-like environments, and being an Ethernet based system it can greatly cooperate with any standard central Ethernet switch.

BUSINESS OFFICE CENTERS



When corporate organizations move into existing office buildings they need solutions to design, install and integrate AV technology into their conference rooms, boardrooms and other spaces to create efficient ways for company communications in the existing building setting. A virtual matrix can be created by integrating into even an already existing 10 Gbit Ethernet network, where the role of crosspoint will be taken by a standard Ethernet switch. Such a virtual matrix can be extremely asymmetric with any number of input and output endpoints. The UBEX system is flexible and expandable so it is an excellent choice conforming both existing and newly developed office environments.