



Combining forces

Building consolidated control for rugged industries and sensitive military applications

matrox[®]
video—

 **CRYSTAL**[™]

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Matrox Video is an expert at data transmission and control from remote locations.

They specialize in high-density, multi-monitor environments that make it easier to transmit and share information, facilitating collaboration and decision making. Their products are engineered and manufactured in Canada but are used worldwide in applications that require maximum reliability and security.



Crystal Group, Inc. is a leading provider of high-performance rugged compute solutions that deliver unmatched reliability for demanding edge applications in extreme environments.

They specialize in customizing servers, embedded computers, networking devices, displays, and data storage that meet or exceed IEEE, IEC, and military standards.

Bringing these two experts together solves unique problems for industrial and military applications

Depending on the application, the computing solution may need to pass MIL-STD-810 certifications for military applications or industrial certifications for hazardous environments. Rugged Crystal Group solutions also address size constraints, power consumption, processing performance, and connectivity options.

Many industrial and military compute systems take multiple years to specify and implement. Since Matrox Video and Crystal Group both design custom products with a longer lifespan than retail computing products, the customer won't have to worry about components reaching the end of their life just as the system is being deployed. It's not unusual for Crystal Group products to last for 20 years or longer, with the option to perform technical refreshes on sub-components if necessary.



Connect and control multiple oil or gas production facilities from one workstation.



Remotely view or record high-motion, high-bandwidth video from multiple mining facilities.



Transport computer servers in energy facilities without worrying about shock and movement.



Move operators away from the heat and noise of servers in an Army command center.



Control multiple air platforms in an active battlespace.



Encode and decode multiple formats of shipboard video streams into a single standard.



IP KVM extenders

Control multiple workspaces from one remote location

The RVA3408T/R KVM extender from Crystal Group is based on the Matrox Extio 3 Series of IP KVM extenders. These high-performance IP KVM extenders support 4Kp60 or 4x 1080p60 video, keyboard, mouse, USB 2.0 and audio at low bitrates over 1 GbE networks. Extio 3 Series extenders are designed to ease deployment of KVM matrix systems over IP and enable secure remote access and collaboration.

Take operators out of cramped, noisy control rooms and give them the ability to operate multiple computers from a single remote location. End users no longer are limited by the distance an HDMI cable can carry a signal. IT installers can easily connect multiple locations through Ethernet switches.

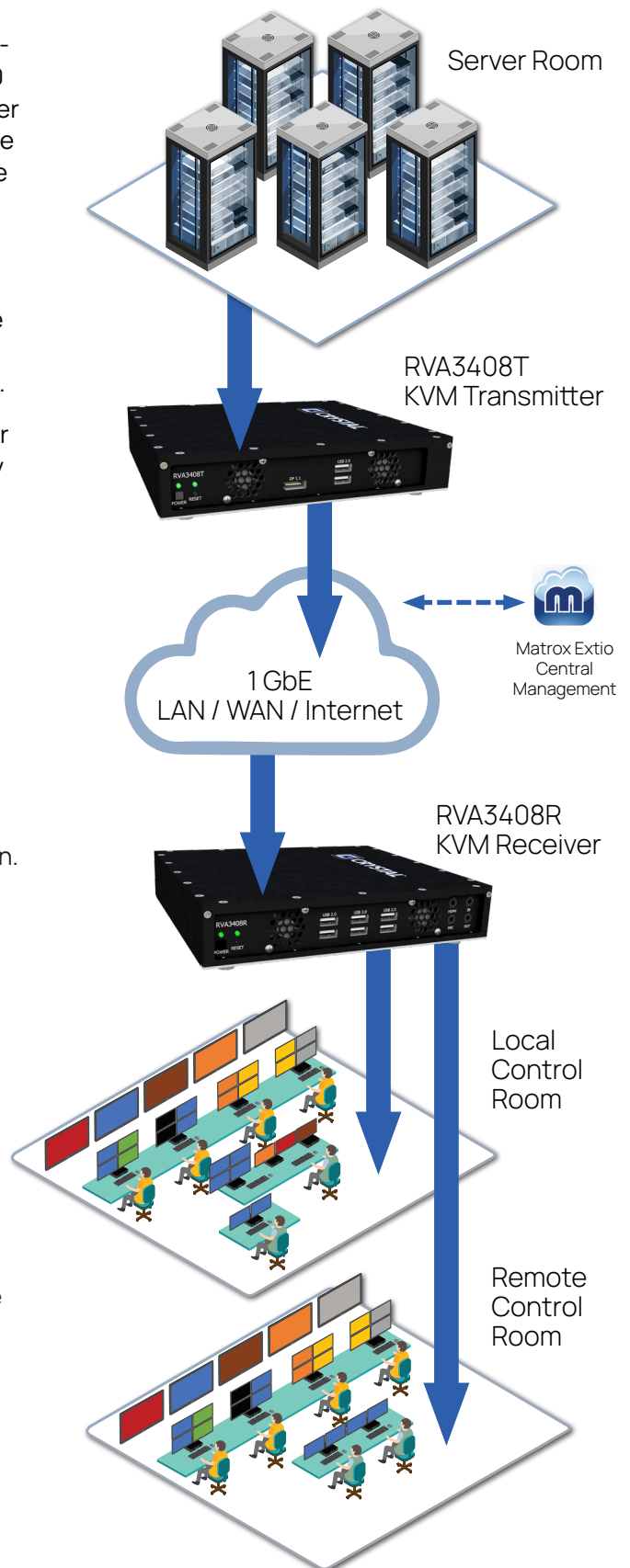
Switch between systems quickly and easily with Aggregator Mode. Make the shift from the current desktop to the next by moving the mouse freely across multiple desktops. Tile View makes it even more convenient to control multiple computer systems, enabling a display of up to four separate feeds on one 4K monitor.

Reduce workloads and consolidate resources using remote access and control. Old systems may have required 20 soldiers to operate 20 computing systems. Now only two soldiers are needed to monitor and control those same 20 systems utilizing IP KVM and one gigabit network infrastructure.

Meeting security needs is always an important consideration. Crystal Group helps their customers evaluate and determine the security levels required for each application. One benefit of using an IP KVM is that no residual secure data remains in the system after a session. Security is built into hardware devices using IPSec VPN client and multi-factor authentication in a classified server room.

- Advanced Encryption Standard (AES) to encrypt KVM signals transmitted between transmitter and receiver.
- USB encryption and device management to block or authorize USB 2.0 devices.
- Integration with Microsoft® Active Directory® and with an IPSec (Internet Security Protocol) VPN client to ensure secure KVM extension over the internet.

Since all Extio 3 signals are encrypted between transmitter and receiver devices, Extio 3 allows for the protected transmission of all audio, video, and USB signals over WAN so that remote users can securely connect to control systems at all locations.



Video encoders and decoders

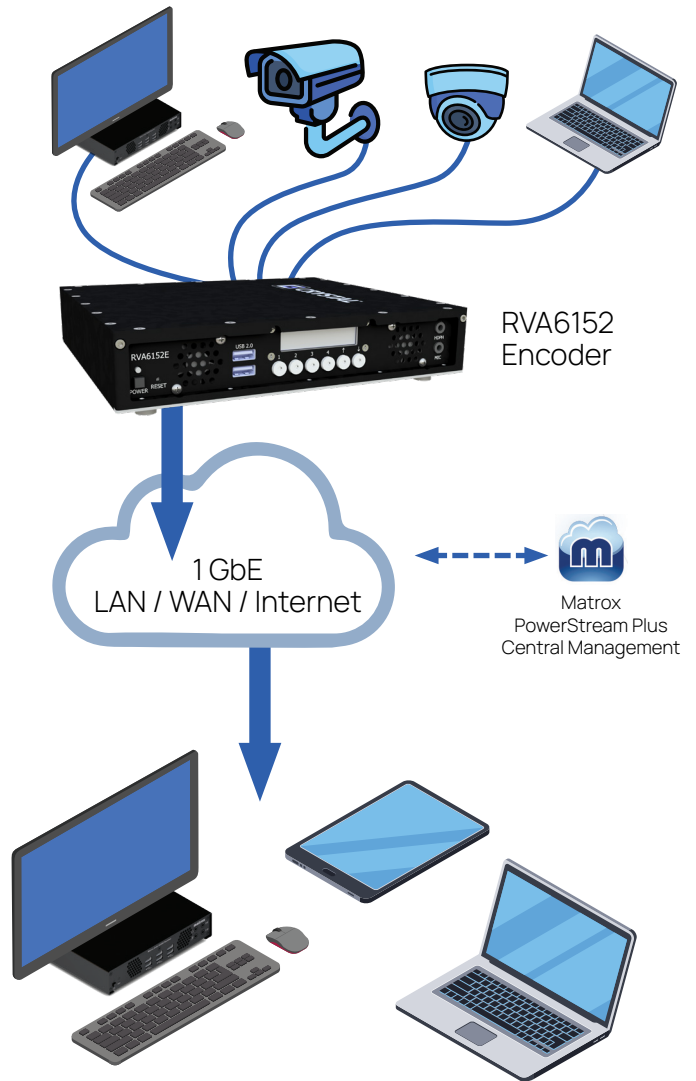
Sharing data and information in real-time

The RVA6152 from Crystal Group is the world's only ruggedized military- and IEC-compliant video appliance. It is based on the Matrox MaeveX 6152 Quad 4K encoder. With multiple outputs and ultra-low latency, video data can be shared in real-time to enable faster decision making.

The quad HDMI® video encoder delivers 4K60 input capture and encode, and supports at least four 4K streams and recordings simultaneously. The encoder features multiple chroma sub-sampling, adjustable encoding parameters, zero-latency pass-through and compositing; all in a quiet, low power, rack-ready appliance that fits almost any encoding application.

It's a highly capable media encoder that takes desktop, camera, and any other HDMI baseband signal output, then compresses and converts it to an IP protocol that can be transported almost anywhere over the LAN, WAN, and internet. You can encode six streaming protocols including HLS, MPEG2-TS, RTP, RTMP, RTSP, and SRT. The system uses H.264/MPEG-4 part 10 AVC for video compression. So, all the infrastructure doesn't have to be upgraded to put a new high-resolution camera in the system. Existing camera information can be encoded and decoded using this single high density appliance.

With preset layouts, the end user can quickly and easily set up single or multiple streams per display using Picture-in-Picture (PiP) and composite options.



Future development and integration

The partnership between Matrox Video and Crystal Group doesn't stop with existing products. As Matrox Video continues to develop new technologies, Crystal Group will work closely with them to ruggedize the solutions. For example, Crystal Group is actively exploring ways to ruggedize the new LUMA Series graphics card from Matrox Video that will drive two 8K displays or up to four high-resolution displays or projectors at up to 5K60. With a projected lifecycle of 7 years, this solution will be a good fit for many industrial, mobile, and forward deployed applications.

If you are considering any product from Matrox Video to operate in a rugged or mobile environment, contact Crystal Group to find out how their combined forces can help meet your needs.

crystalrugged.com

video.matrox.com

