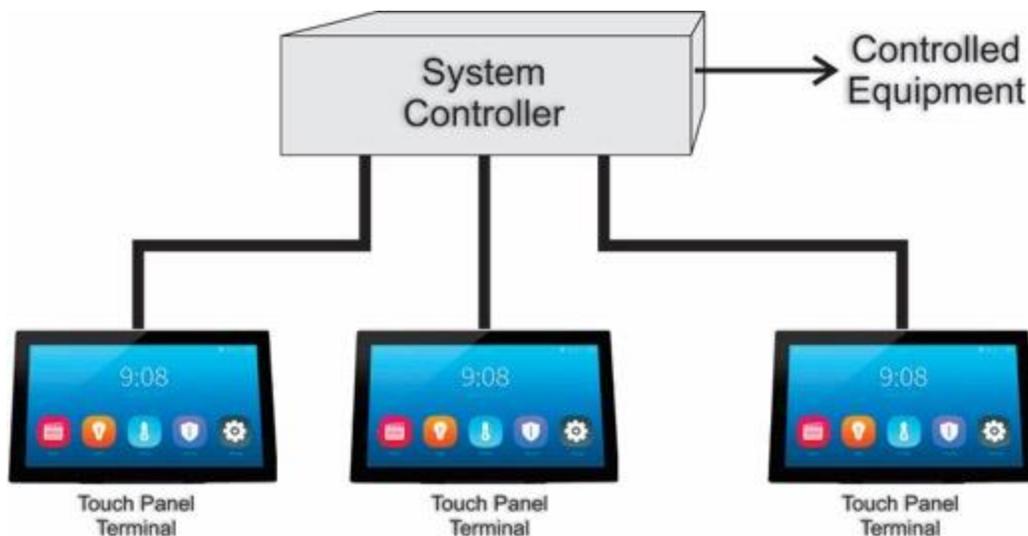# TEKVOX Distributed Control System
White Paper

TEKVOX introduces a new way of thinking about AV control systems. Most control systems use a centralized controller where a large program sends commands through RS232 and TCP IP to communicate to devices. Programs are written in a proprietary language and Touch panels on these systems are basically dumb terminals sending button commands. This is kind-of-like the old IBM mainframe days where a bunch of dumb terminals are connected to a mainframe.
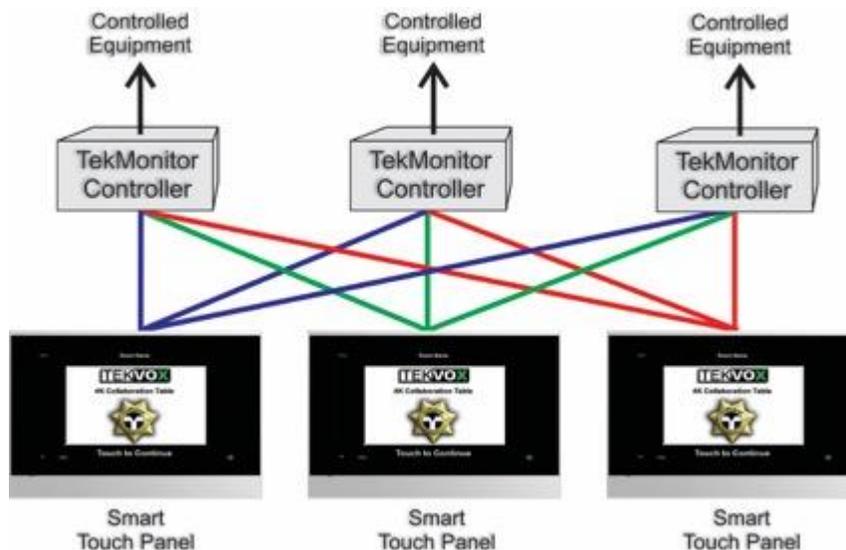
With TEKVOX systems we use distributed controllers called TekMonitors to communicate with devices. The latest TekMonitor is called the TEK 3. Drivers are loaded into a TekMonitor to provide the communication to devices. The TekMonitor also supports features like remote monitoring, email, occupancy detection, asset management, status commands, macro scripts, and scheduling. These features allow for offloading complex control software to an easily managed wizard type application. **Changing out displays are other devices does not require modifications to the control program when using TekMonitors.**

TEKVOX uses Smart Touch Panels that operate the logic of the system. Multiple Smart Touch Panels can easily connect to and be synchronized by TekMonitors using a very simple TCP/IP protocol called TekEzLink. One of the unique features of TekEzLink is to provide device feedback method to all devices connected to it. DSP systems like Tesira also have similar features. This method allows multiple connected Smart Touch Panels to be synchronized without any extra programming.
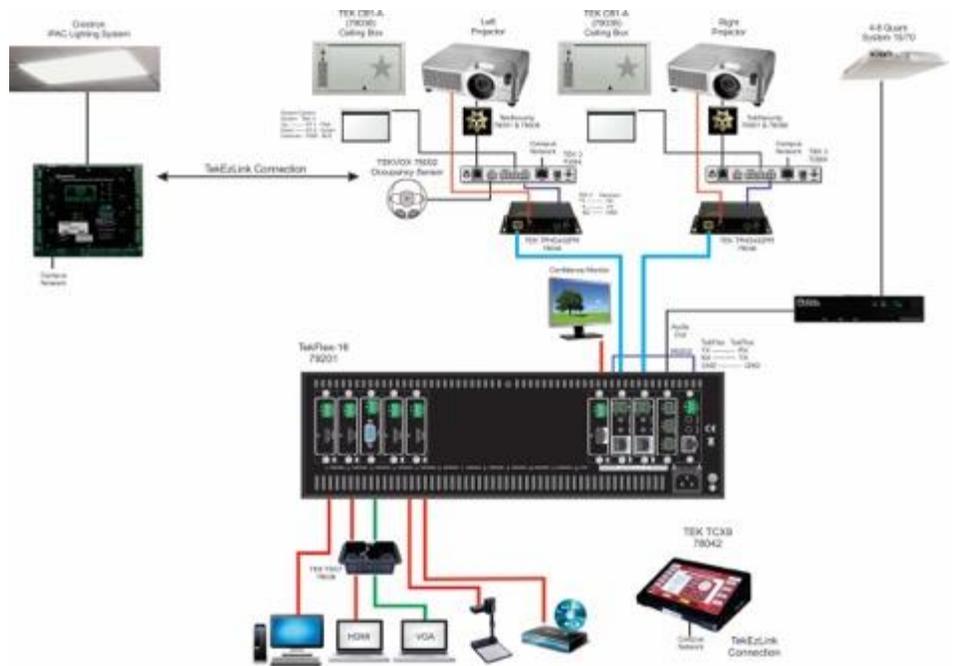
TekEzLink features allow different control systems to be bridged together. For example, you could actually have a Crestron IPAC lighting system used with AMX and/or TEKVOX TCX9 without creating any special protocol. In this example a TekEzLink module is added to the Crestron IPAC lighting system and is setup to monitor and send lighting scene settings in the left TEK 3. The TCX9 also monitors and sends lighting scene settings to the left TEK 3 which is then forwarded to the IPAC lighting system.

Benefits of Distributed Controllers
- Multiple Room Controllers can be synchronized and utilized as a group
- Simplify control software by offloading complex software to the TekMonitor
- Adding remote management without programming
- Maintaining the system can be performed by technicians
- Replace devices like video projectors and displays without modifying the control program
- Simple TCP/IP control of devices without having to write any driver software
- Testing devices can be done without having to write any software
- Lower cost than conventional centralized control system

TEK 3 Features:
- IP device communications of up to eight (8) devices
- TekBus expansion interface or a third RS232 serial port
- Flexible digital I/O that can also drive an IR transmitter
- Improved isolated PoE with full support for IEEE 802.3af Standard
- Enhanced Macro Support
- Security management for display devices
- Supports occupancy and motion sensors
- Scheduled e-mail usage reports
- Lamp, filter, and maintenance timers with e-mail reports
- Event scheduling
- Supports DHCP IP configuration using a proprietary auto-discovery
- Compatible with any device that has a data connection and released protocol
- Up to 50 macro definitions with programmable logic

Conclusion

When it comes to controlling devices over the network, the TEKVOX TekMonitor simplifies control software by using drivers loaded into the TekMonitor. Other network devices that support RS232 or IR system control only convert TCP/IP commands to RS232 or IR. This requires the programmer to look up the API commands of the device and create their own driver. Sometimes direct IP control of devices is not reliable or is very complex. This can all be simplified using the TekEzLink protocol of a TekMonitor.