

MOTION CONTROL FOR MAXIMUM A/V EXPERIENCE



Procom Sound Burr Ridge, IL

Procom Sound is no stranger to conquering “technical difficulties.” As an audio/visual integration specialist for both commercial and residential applications, they’ve had their fair share of unruly technology and migraine-inducing integration. However, when asked to install the ultimate TV viewing motion track in a Chicago penthouse, they were able to utilize SmartMotor technology and Animatics tech support for the all-angle solution.



Tasked to create a TV viewing environment that would be ideal for any seat in the room, as well as be able to disappear flush against the wall when movie time was over, Procom Sound accepted the challenge. A monorail-type track system that would elegantly move the TV around in the room was researched and purchased for the project. Once customized and installed, the next task at hand was choreographing the TV’s movements throughout the room and triggering those movements via the system’s remote control.

One of the issues to overcome was combining two communication ports: one from the SM2315D SmartMotor running linear motion and the other from the SM2315D SmartMotor running the rotary motion. The com ports needed to be combined into one input for Procom’s advanced home theater control system to work correctly. In addition,

communication between the SmartMotors was needed to prevent damage if the rotary SmartMotor was not in correct orientation when meeting or leaving its flush position against the wall. All this was a daunting programming task for someone not familiar with integrated servo motors. If Procom had the option, the SM23165D SmartMotors would have been used with RS485 allowing bi-directional communications between the SmartMotors.

With the help of Chuck Searcy, Animatics’ Senior Application Engineer, and support from Servo Systems, a SmartMotor distributor, Procom was able to wire the SmartMotors into a daisy chain so that only one communication port came out of the theater control system, into the SmartMotor, with the SmartMotor servos communicating mainly between each other. This was accomplished by wiring RS-232 from the linear motor to the rotary motor, while I/O wiring provided status from the rotary motor back to the linear motor. The linear motion motor was master to the rotary motor, and commands could be tested in SMI2 software before interfacing with the final control system. The linear motor was programmed with a hard-wired RS-232 connection, while programming of the rotary motor *passed through* the linear motor, through the RS-232 bus/chain before reaching the rotary motor’s address. Removing the burden of communication from the theater’s control system allowed for a more user-friendly interface, and wiring the I/O delivered a more fluid and stable motion during normal operation. Animatics even reviewed documents about the final control system and provided assistance with addressing and message formatting.



“Everything’s been great since delivery day for that project and I haven’t been down to the site once for tech support,” said Brian Rockett, Integration Specialist for Procom Sound. “Customers expect reliability for high end projects like this, and the SmartMotor didn’t fall short. None of this would have been possible without all the help from Animatics and Servo Systems.”

Once Rockett better understood how the SmartMotor worked, he was even able to program a demo sequence of the main location settings for the home theater system and integrate it into the universal remote so that with one touch, Procom Sound or the penthouse owner could display all twists and turns in the range of possibilities of the new home theater system. “I simply wrote one paragraph of reference code to perform the demonstration sequence, closed the laptop and walked away and it worked flawlessly,” said Rockett. The audio highlight of the room includes 8 speakers in the ceiling, 3 hanging from the TV, and a subwoofer, which automatically become 3 independent 5.1 surround sound systems – based on the TV’s current location, providing a “sweet spot” of surround sound, no matter where you are sitting in the room.



“If we are confronted with this situation again, we would recommend the SM23165D-C SmartMotor with the CANopen communication,” says Chuck Searcy, Senior Application Engineer for Animatics. “Though it wasn’t launched before the completion of this particular project, the whole thing would have been a cakewalk with the new Combitronic technology.”

<http://www.youtube.com/watch?v=CpzeZcSQQsI>



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