

Real Time Bidirectional Wireless Digital Multiplexer (WiDMX)

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Abstract—Digital multiplexer512 (DMX 512) is a standard for digital data transmission mainly to control stage lighting. Conventional DMX512 employs bus topology in a daisy chain network. The network consists of one master and one or more slave devices connected through wires. Although wired connection validates reliable data transfer, yet it increases network complexity, specifically, where wires can be prohibitively lengthy. Additionally, wired connected DMX512 devices limits mobility and scalability while on other hand it increases labor and cost. Hence, there exists a need to replace the wired DMX512 with the wireless one. In this paper, we propose a wireless DMX512 system. Keeping in consideration the characteristics given by the DMX512 standard, we propose a novel design where master and slave can transfer DMX512 packets wirelessly. Simulation results and successful implementation validated the performance of the system.

Keywords— DMX512, wireless system design, WiDMX512, system configuration, wired-wireless star topology.



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