

ABSTRACT

Multiple remote sensors using digital optical free-space data link enables you to monitor the measured parameters from a convenient spot in your home or office. You can place the remote sensors up to hundred meters away from the base unit. You can use the remote sensors to alert you to the possibility of dangerous conditions. Just place the sensors in the area that needs monitoring and set the main unit in a convenient location. In order to increase the safety during high voltage measurement and base the protective measures against over voltages and unimplementable communication cable we intend to develop a hardware and software via multi-channel optical free-space with digital transmission link for data monitoring based on optoelectronic components and virtual instrumentation.

In this work, the operating principles of optical wireless systems with electromagnetic interference (EMI) environment, digital transmission in multi-channel, software for virtual instrument in data monitoring, recording and analyzing are discussed.