RADIOMETRIX

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Radio modules enable lighting control system

Case Study, February 2003

Radio datalink modules from Radiometrix are at the heart of the world's first fully wire-free addressable lighting control system.

Exodus Electronic is a UK company that designs and manufactures innovative wire-free switching and remote controller products, primarily for the control of electrical/electronic systems in new build or refurbishment building projects.
For example, its products have recently been installed in Cornwall's rightly famous Eden Project - an innovative and highly architectural scheme in its own right that demanded the sort of novel products that Exodus Electronic can provide.
The company's products have also been used in a broad spectrum of other buildings ranging from the ancient to the thoroughly modern. Yet another prestigious recent application was for the control of the Christmas lights in Oxford Street.

The company's first product was Smartswitch - a then unique system comprising wire-free switches or remote controllers transmitting FM radio signals to receivers placed in lofts or roof voids. These, in turn, are wired to light fittings to provide on/off or dimming control. With no cabling required to the switches, the system affords a quick, flexible, cost-effective and attractive installation with no "making good" or redecoration required, nor the need for unsightly wires or trunking systems. Smartswitch uses Radiometrix's datalink modules to provide the wire-free switching itself.

Exodus Electronic's second major product, equally innovative and only introduced early in 2003, is unique in that it is thought to be the world's very first fully wire-free addressable lighting control system. Called Pro-Controls as an own-brand by Fitzgerald Lighting Group (FLG) which markets it, this system also benefits greatly from Radiometrix wireless datalink products - in this case the TX2/RX2 miniature PCB-mounting UHF radio transmitter and receiver pair. These operate at the 433.92MHz European frequency, which provide a high-speed datalink at up to 160Kbit/s over ranges up to 75m inside buildings and 300m over open ground.

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As such, the TX2/RX2 modules provide the perfect option for OEMs, like Exodus Electronic, manufacturing radio-controlled devices such as those found in lighting systems.

Pro-Controls is a suite of products, all designed and manufactured by Exodus Electronic in the UK, that together make a complete lighting control system. Pro-Controls provides lighting control features more commonly associated with far more expensive systems. No bus communications wiring is required.
At the system's hub is what Exodus Electronic calls a "digital marshalling box" (DMB). This intelligent controller - which contains TX2/RX2 modules - distributes the power to the connected lighting fittings, but it also allows the necessary control and dimming functions needed for both modern architectural and commercial buildings.

Typically, commercial buildings require occupancy and daylight linking while architectural lighting control requires scene-setting and recall. These are very different demands that, previously, only the most expensive conventional systems could manage. However, helped by Radiometrix's TX2/RX2 modules, Pro-Controls can manage this feat at comparatively low cost. An entire lighting installation is simple to reconfigure within minutes using a handheld programmer. No PC connected to a bus network is required so everything is also made cheaper to operate. Pro-Controls would not, however, work without the wire-free radio technology from Radiometrix.

Exodus Electronic chose Radiometrix's TX2/RX2 modules because they operate so well inside buildings, and at remarkable long range - up to 75m.
They are also used where they are required to operate to far longer ranges outdoors. The SAW-controlled TX2 transmitter, which gives the remote control facility to the hidden DMB unit, is located in the system's handheld programmer. The TX2's small size (12 x 32 x 3.8mm) and PCB mounting make it perfect for this application.

The DMB units, each of which can control up to nine lighting groups, will communicate with up to 50 RF devices, these being any combination of RF sensors, handheld remote controllers, programmers and wall switches.
These devices also house the all-important RX2 receiver. Here again, because of the small size of the devices, Radiometrix's RX2 receiver makes it the perfect choice for the application.

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Commented Exodus Electronic Managing Director James Hunter Johnston: "The Radiometrix TX2/RX2 datalink modules have a long range and have proven to be thoroughly reliable, making them ideal for our Pro-Controls application.
In addition, we like the TX2/RX2 modules because they are easy to develop with - allowing simplicity of product design". "The TX2/RX2 pair is ideal for large scale applications inside buildings and give us great scope - especially for lighting controls", concluded Hunter Johnston.

The Radiometrix TX2 and RX2 datalink modules are ideal for OEMs operating in the important and rapidly expanding sectors of security and also lighting control. The Radiometrix TX2/RX2 modules comprise a miniature PCB-mounting UHF radio transmitter and receiver pair, operating on the 433.92MHz European frequency, which provide a high-speed datalink at up to 160Kbit/s over ranges to 75m inside buildings and 300m over open ground. As such, the TX2/RX2 modules provide the perfect option for OEMs manufacturing radio-controlled security devices. The modules are also ideal for a wide range of other one-to-one and multinode wireless link applications in battery-powered and handheld equipment.
The Radiometrix TX2/RX2 transmitter/receiver pair, which is CE-certified by an independent notified body, provides verification to comply with radio standard ETSI EN300 220-3 and with EMC standard ETSI EN301 489-3 by a UKAS accredited test laboratory.

Please see the TX2/RX2 Datasheet for more information.
Please also see the TX2A and RX2A datasheet and our new RX2G receiver.

About Radiometrix

Established in 1985 and headquartered in London, Radiometrix continues to be recognised as the leading global developer of narrow and wideband radio communication modules. Our diverse product range is suitable for a wide variety of licensed and licence-exempt ISM/SRD wireless applications, and is available worldwide through our global sales and distribution network.

For more information on the company, please visit our website:
www.radiometrix.com

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