

## **Functional Description, SynapNode**

The SynapNode is a wireless, ISM band (2.4GHz) short range device used to collect sensor network information and relay it, via the wireless network, to a gateway device for collection and analysis. It consists of an alkaline battery case to provide power, a radio transceiver module, a microprocessor, an onboard temperature and humidity sensor, and expansion board to allow common industrial sensors, such as current loops, external temperature probes, and proximity switches to be connected.

Transmissions are in the 2.4 GHz ISM band, DSSS, 0dBm, using O-QPSK modulation. 16 channels are user selectable between 2.400-2.485GHz.

Regulatory compliance is achieved by means of a single-chip transceiver. No external components are required with the exception of a 16MHz crystal specified by the manufacturer of the transceiver and an antenna-matching network. The antenna matching network was adopted from the manufacturer's reference design which has been previously proven to be compliant. There are no components which can be adjusted, changed or substituted in the transceiver circuit.