

# **TECHNICAL DESCRIPTION FOR NOMAD**

## **LK3A-2 TERMINAL**

The NOMAD system comprises a PC, a controller, multiple link units and terminals. The controller connects to the PC via a RS232 link. A RS485 bus connects the controller to the link units. Each terminal has a low powered UHF transceiver that communicates with a similar transceiver in the link units. The number of link units depends on the size of the site. The aim of the whole system is to get data from the terminals onto the PC.

The LK3A-2 link unit is a 12V DC powered transceiver with a RS485 interface. Data for transmission is sent to the link unit via the RS485 and received data is sent back down the RS485. The controller schedules all communication over the RS485 interface.

Two small, embedded processors with a 4MHz clock provide all the peripheral and control features. On-chip UARTs interface to the wireless and RS485 sections and the two processors communicate via an I<sup>2</sup>C link. The data lines from the RS485 interface are optically isolated from the processor. A DIP switch sets the link unit address.

Power supply input is 10-18V DC with a switch mode isolator regulator for the control side and a linear regulator for the RS485 interface. Average consumption is 100mA.

The wireless section is centered around a TR1000 hybrid transceiver from Radio Monolithics. This device contains all the necessary RF circuitry with just a few passive components, a 3.3V regulator, and a couple of transistors to perform level shifting of the logic signals. The antenna is a 1/4 wave whip connected by a non-standard connector. Operating frequency is 916.5 MHz and the modulation type is OOK.