NOMAD Overview

General

The Nomad system uses a wireless battery powered terminal (NRT202) and a 12V DC powered base station (LK4-2 Link Unit) to gather manually entered data about personnel activity. The system is primarily target at commercial horticulture.

Communication between the two devices is via a 915MHz low power FM radio signal. All communication is initiated by the link unit to which the terminal then makes a response.

NRT202 Terminal

The terminal has a numeric keypad and a CCD type barcode reader for data input, along with an LCD display for operator feedback.   Up to 231 terminals may be deployed on one network. The CPU is a PIC18LF4520 running at 8MHz. All entered data is buffered in a 256k I^2C EEPROM in case the terminal is out of range of the link unit. The radio link uses a XE1202A from Semtech with a PCB antenna. Power is provided by two NiMH cells that are sufficient to allow an operational time greater than 12 hours in normal use. A 9-18V DC charging input allows the cells to be charged without removing them.

LK4-2 Link Unit

The link unit connects to a RS485 bus and passes correctly formatted messages to the terminal, waits for a response and returns that on the bus. The CPU is a PIC18LF2520 running at 8MHz. The radio link uses a XE1202A from Semtech with a ¼ wave whip antenna. Power is form an external 12V DC supply and the processor power is derived from an isolated DC-DC converter. The RS485 bus drivers are powered by a linear regulator directly from the external supply. Signals to/from the RS485 driver are optically coupled to increase noise immunity. Multiple link units (maximum 32) may be connected to the same bus, the address of each is set by a DIP switch.