

Operation Description

Operation Frequency: 2411-2480MHz

Modulation Type: GFSK

The eBoard (HSTNX-001) tracking uses technology of ultrasonic, infrared and 2.4G wireless. All devices of CPU use general MCU 8051 compatible process.

Devises power management unit (PMU) is comment voltage regulator with voltage step-up and step-down function for power saving.

The system processing of Electronic Stylus / Marker Sleeve transmits 40kHz ultrasonic signal & 38kHz infrared signal to sensor device. The eBoard sensor thru A/D processing including amplify, filter and AGC. Signal process & pass data to MCU to calculate ultrasonic respond time, convert X,Y position via 2.4G wireless to Receiver.

RF Module:

The RF Module is based on Nordic single chip namely the nRF24L01 for the world wide 2.4GHz ISM band.

The single-chip 2.4GHz solution which is optimized for high volume production. It has an extremely low average current consumption in the peripherals, only 9.0mA at an output power of -6dB. It can utilize low-cost micro controllers while still offering 1 or 2Mbps data rate on the air, enabling outstanding RF performance, with likelihood of collision and blocking virtually eliminated. It can operate in an environment with very good RF link integrity in the 2.4GHz ISM band.

The nRF24L01 complete integrated 2.4 GHz radio transmitter, an RF synthesizer, including unique Enhanced Shock Burst[™] hardware link layer integrity of the base-band logic, advanced power management components and one for host control the high-speed interface SPI. nRF24L01 needs for an external loop filter, resonator and VCO modulation diodes, only need to configure a low-cost $\pm 60\text{ppm}$ 16MHz crystal oscillator, matching circuit and antenna.