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MotorGuide PinPoint Fob Operational Description

This device is an operator interface to the Xi5 electric trolling motor equipped with the PinPoint GPS navigation module. The product is designed for low speed maneuvering, aimed mainly at the fishing market. The PinPoint module provides the trolling motor GPS and compass sensors to assist the user with motor control.

The PinPoint fob has a PCB with Linx Technologies TRM-2.4-ST for RF transmission to the trolling motor. The antenna is an inverted-F PCB trace antenna. The fob has switches that communicate desired functions to the trolling motor such as turning, increase throttle, etc. A Microchip microcontroller IC, part number PIC16F72A, is used with embedded programming to interpret the switch signals and send the proper data to the trolling motor. Power for the unit is provided by (2) replaceable 1.5Vdc AAA batteries.

The transmitter uses a GFSK transceiver designed for operation in the 2.45GHz frequency band. When a button is pressed, the module records the logic states of the buttons and creates a Command Byte. It then retrieves its Address from memory, assembles a packet and transmits the data. The transmitter sends the packet once on each of three frequencies. It then checks to see if the button is still pressed and if so it repeats the cycle. A 30 second timeout is employed to stop transmission if the button states have not changed.

The three channels are selected to avoid interference from Wi-Fi signals. They are shown in the table below.

Channel	Frequency (MHz)
0	2424.5
1	2449.5
2	2480.0