

GOLF TROLLEY REMOTE CONTROL SYSTEM

Type Number: D179x

Manufacturer: Blue Water Technology Ltd

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1: General Overview

The control system consists of 3 units that may be incorporated into a twin motor golf trolley to give remote control of the trolley via a small hand unit.

Steering is achieved by differential operation of the motors with the option of controlling a front castor wheel. The design of the trolley is such that the centre of gravity and loading on the front stabiliser wheel allows rotation about a vertical axis and hence change of direction.

The motors can be reversed singly or as a pair to allow reverse and swivel operations.

2: Transmitter

The transmitter is battery operated and consists of an RF module operating on 433 MHz controlled by a microprocessor.

A keypad is strobed by the processor and the resultant commands are transmitted as a low data rate 16 bit word.

8 (optionally 9) of the data bits are used for coding to allow independent control of the trolley from others in the vicinity and the other bits are used for command communication and checking.

RF transmission from the unit is restricted to the duration of key presses.

The coding of the transmitter is achieved by the use of DIP switches.

3: Receiver

The receiver is mounted in the handle of the trolley and consists of a 433 MHz receiver module and a microprocessor unit.

The data from the RF module is interrogated by the processor and the coding and signal format of the data stream checked. The code is extracted and compared with a DIP switch set by the user. In this way unique control of the trolley can be achieved.

The command word is extracted from the data stream and, after processing, is transmitted via the handle wire to the motor control unit on an open collector low impedance single wire.

4: Motor Control

The motor control unit controls the speed of the motors via a variable pulse width fixed voltage supply.

The power for the unit is derived from a 12V sealed gel battery of approximately 30 AHr capacity.

Energy recovery from the motor armatures is achieved by the use of fast switching controlled recovery power diodes.

Motor reverse function, braking and safety isolation make the use of automobile type high current relays.

The unit is managed by a microprocessor, which interrogates the data received from the receiver unit and carries out all functions including relay control, motor current limiting and MOSFet drive generation.

Motor current is monitored by measuring the gated voltage drop across 2 30A motor protection fuses.

A status light shows the operating status of the controller and a time out is incorporated to allow for cessation of the handle signal under fault conditions.