

## **SHELL SHOCKER H6928**

### **49.860MHz RECEIVER OPERATIONAL DESCRIPTION**

The Shell Shocker is a full function radio controlled toy ball . It operates on 7.2v volts rechargeable sub-c pack battery. and is designed to operate on a single fixed frequency in the 49.82-49.90MHz band. See the attached block diagram and schematic.

The modulated RF signal from the transmitter induces an electrical signal into the RX's internal permanently metal antenna . The electrical signal is selectively amplified by a super regenerative input circuit ( Q1,T1,L3,C2-C5 ).

An amplifier consist of the transistors Q2, Q3 & it's associated components.

The amplified signal is then input into an integrated circuit ( U1 ) where the signal is decoded. One pair of digital outputs from the integrated circuit ( U1 ) drives a full H-bridge drive circuit ( Q5~Q10 ) for controlling the direction of the open/close petals motor.M3. The other two pairs of digital outputs drivers four relays (RL1~RL4 ,Q14,Q16,Q21,Q24) for controlling the direction of the driving motors M1, M2.

Two micro switches SW2, SW3 are the extreme position detector of the motor M3's movement. eg. When the ball moved to full opened ,the SW2 closed (from open) , will stop the open movement even open command received , but can be controlled towards close move if close command received.

The batteries voltage is detected by a Low voltage protection circuit (R24~R27, C28, C29, U2). The voltage of U2's pin1 will turn to low level (from high level) when the battery voltage drop to preset low level. When the low level at U1's pin1 maintain preset time , U1 Will cut off its output until re-power off/on

The operating current of motors is detected by a over current protection circuit (R14~R23 , C23, C25,C27, R46,R56,R66,U2) ,.The voltage of U2's pin2 (or pin13,pin14) will turn to low level (from high level) when the operating current is rising up to preset value , When the low level at U2's pin2 (or pin13,pin14) maintain preset time , U1 Will cut off its output until the car rest preset time & retoggle the transmitter . After two times OCP detected , will cut off all motors funtion until re-power off/on.

Two red LEDs act as operating indicators

All tuning and verifications are performed by the manufacturer and there are no adjustments that can be made by the user. No external ground is required or used with this receiver.