



## Hard Wire Remote Control Interface for Modified BD DVD Recorder/Players & STB's

RC5 is a generic term for the multiple infra red remote control protocols that exist. The RC5-RS422 interface is designed to provide a unified wired interface to the different Blue Ray/DVD players or in fact any device that has an optical interface.

RS-422 was chosen as the serial connection for the following reasons

- 1) The connection is balanced and suitable for use over long distances (up to 1Km)
- 2) Computers no longer have RS323 ports fitted as standard
- 3) The Sony P2 interface uses RS422

### GUI

A software GUI replicates the infra red remote is developed for each machine as interfaced.



The GUI provides access to all the functions available on the machine. These commands are often machine specific, to enable others to design their own interface you can open a window and see the individual commands that are sent as each key is depressed (Appendix B)

### Serial Protocol

The Serial protocol is based on the Sony P2 Protocol with extensions. See appendix A for details

**Hardware Machine Interface** The machine interface can be wired or use a infra red connection. Machine modification is simple and requires two wires connected to the infra red receiver, to disable the infra red receiver an extra lead may be fitted and one lead of the infra red receptor is cut.



Appendix A

**Sony Protocol**

DATA RATE 38.4

1 START, 8 DATA, ODD PARITY, 1 STOP

9 PIN D DEVICE CONTROLLER

1 GND GND

2 TXA RXA

3 RXB TXB

4 RX GND RX GROUND

5

6 TX GND TX GROUND

7 TXB RXB

8 RXA TXA

9 GND GROUND

CMD FORMAT

BYTE 1 BITS 4-7 CMD-1 (Command/Status Group)

BITS 0-3 Number of data bytes 0..15 (Excluding CMD1, CMD2, CHECKSUM)

BYTE 2 CMD-2 (Command/Status)

BYTE 3...N-1 Data bytes length specied by CMD1 LS nibble

BYTE N CHECKSUM= SUM BYTE 1...N-1

The basic Sony transport commands are accepted as follows

Stop: 20 00 20

Play: 20 01 21

Record: 20 02 22

Eject: 20 0F 2F

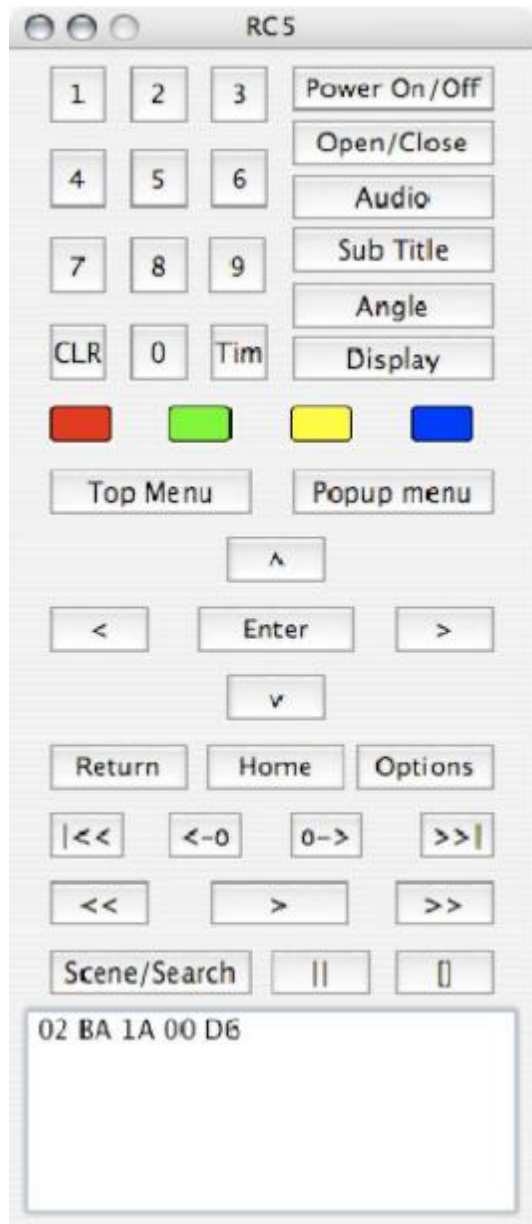
Fast Fwd: 20 10 30

Fast Rvs 20 20 40



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Appendix B



In the example to the left the key command data is 1A, the last byte is the check sum D6, these are the only two values that change when different keys are depressed. Unfortunately RS5 communication may only be used to send commands to the machine and not request status information from the machine.