

# Description of Serial and Parallel Port Control Cables

Filip Sala

Warsaw, 22nd February 2006  
(revised 8/06/2008)



This document contains information about making Serial and Parallel Control Cables for Canon® (DSLR) Cameras. However described solution has been tested, author **takes no responsibility** for any damage or loose caused by inappropriate use or/and errors in this document. However author made all his efforts to make this documentation free of errors no guarantee can be provided. You use this documentation **AT YOUR OWN RISK**.

## Table of content

1. Idea of Serial and Parallel Port Control Cables
2. Making circuit RS-232
  - 2.1. Needed parts – Serial Port Cable RS-232
  - 2.2. Circuit scheme and description
3. Making circuit LPT
  - 3.1. Needed parts – Parallel Port Cable LPT
  - 3.2. Circuit scheme and description
4. Using Cables

## 1. Idea of serial and parallel port control cables

The idea of port control cables is very simple. Some cameras have shutter control output to which you can plug a pilot and control the shutter remotely. The idea is to connect a camera with a computer and control shutter remotely. To do this we need a special cable.

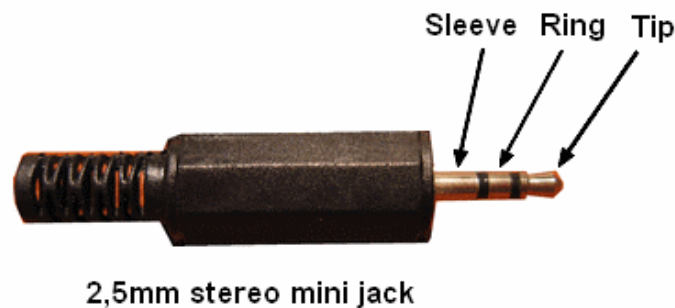
### 2.1 Needed parts (Serial Port Cable – RS232)

To make a simple serial port control cable you need:

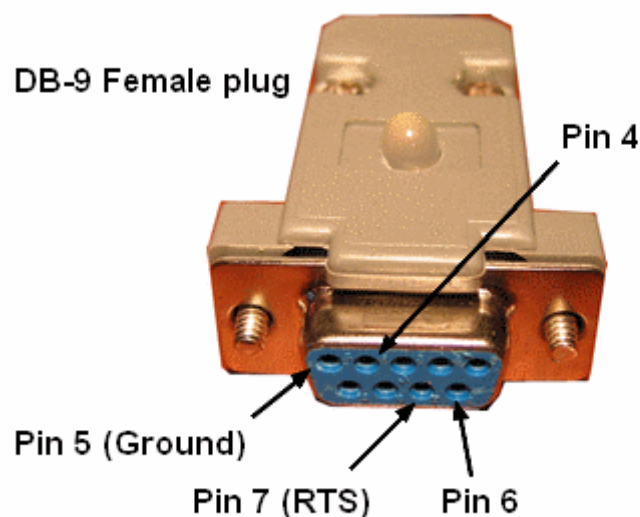
- 1 x Resistor 2,2k Ohm
- 1 x Transistor (npn) (e.g. 2N2222)
- 1 x Diode (e.g. 1N4001)
- 1 x Female RS-232 plug (DB-9) 9 pins
- 1 x Stereo small jack 2,5mm
- Up to 10 meters of 2 wire cable

### 2.2 Circuit scheme and description

Camera output is a 2,5mm stereo jack (one size smaller than that used for walkmans headphones).



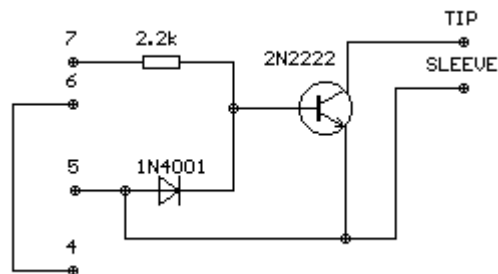
As a computer interface the RS-232 is used. Female plug (DB-9) for RS-232 port is shown below.



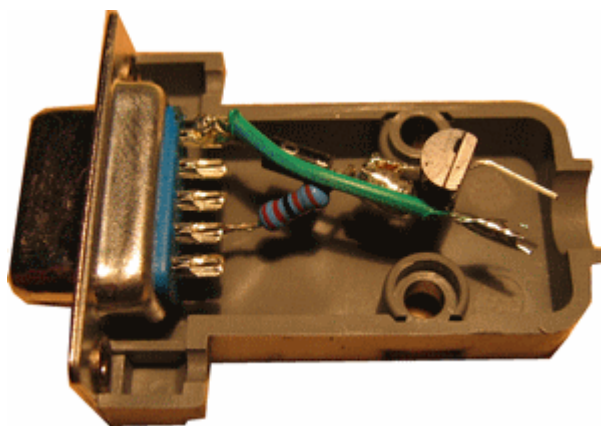
## RS-232 Pins

Pin	Name	Description
1	CD	Carrier Detect
2	RX	Recieve Data
3	TX	Transmit Data
4	DTR	Data Terminal Ready
5	GND	Ground
6	DSR	Data Set Ready
7	RTS	Request To Send
8	CTS	Clear To Send

Circuit is very simple. Scheme is shown below.



Numbers on the scheme are numbers of RS-232 pins. The idea of this circuit is to make a connection between TIP and SLEEVE when pin7 (RTS) is high (positive voltage), and to disconnect them when RTS is low (negative voltage). Voltage on the transistor base should be approximately 0.7V. Diode in this circuit only protects the transistor and does not play any other role. Not bad idea is to place the whole circuit in the DB-9 plug.



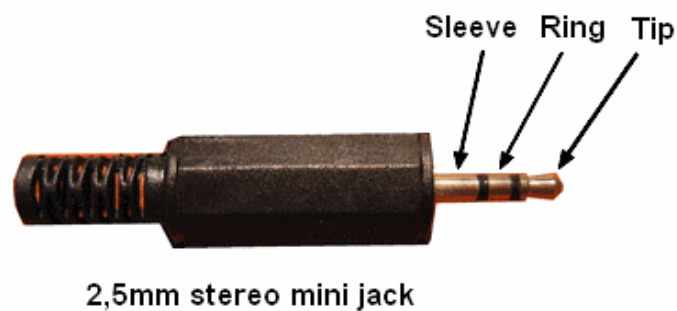
### **3.1 Needed parts (Parallel Port - LPT)**

To make a simple parallel port control cable you need:

- 1 x Resistor 47k Ohm
- 1 x Transistor (npn) (e.g. 2N2222)
- 1 x Diode (e.g. 1N4001)
- 1 x male LPT plug (DB-25) 25 pins
- 1 x Stereo small jack 2,5mm
- Up to 10 meters of 2 wire cable

### **3.2 Circuit scheme and description**

Camera output is a 2,5mm stereo jack (one size smaller than that used for walkmans headphones).



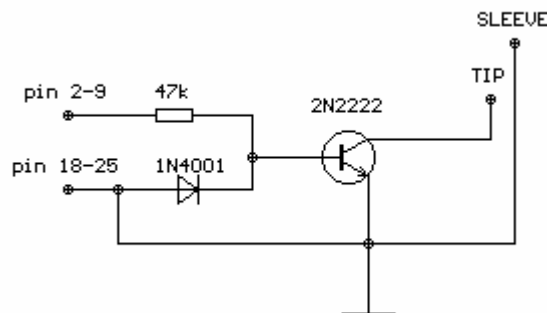
As a computer interface the LPT (parallel) is used. Male plug (DB-25) for LPT port is shown below.



## LPT Pins

Pin	Name	Description
1	STROBE	
2	D0	Data LSB
3	D1	Data
4	D2	Data
5	D3	Data
6	D4	Data
7	D5	Data
8	D6	Data
9	D7	Data MSB
10	ACK	
11	BUSY	
12	PAPER END	
13	SELECT STATUS	
14	AUTO LINE FEED	
15	ERROR	
16	INITIATE PRINTER	
17	SELECT PRINTER	
18-25	GND	Ground

Circuit is very simple and similar to this shown for RS-232 port. This time resistor can be attached to any of the pins from 2 to 9 (Delphinus will support it but some other programs only supports pin 2 so for better compatibility with other programs it's recommended to use pin 2). Ground can be attached to any pin from 18 to 25. Diode here is only to protect the transistor and can be omitted in most cases but we recommend to use it in this circuit.



## 4. Using Cables



Before connecting your cable to the camera check the output voltage and current in your circuit. Simply connect plug into RS-232/ LPT port. Run program Delphinus. Set long Time value (e.g. 360 sec.). which give you time to check the voltage. Select appropriate port address (typically COM1 or LPT1). Press “Camera” icon and check the voltage between TIP and SLEEVE. A few mV (typically up to 300mV) are acceptable, but if the voltage is higher than something is wrong **and you absolutely should NOT plug your cable into the camera.**



**Remember:** Whenever you want to connect or disconnect plug make sure that your computer is not running. Connecting or disconnecting cables on running computer can affect in port damage!