

Nikon D40 – D70 Bulb IR PC Control

See end of article for contact details

The Nikon D40 DSLR is a great entry level camera for astrophotography. The problem was the frustration of having to trigger the camera manually in BULB mode with the Nikon KL-L3 infrared unit. This prompted me to come up with a solution and build an IR control unit for BULB photography which could be controlled from my Laptop. After an internet search, I found the ideal solution on [Jan Wagner web page for a Nikon D70 project](http://users.tkk.fi/jwagner/electr/d70remote/). I took this concept a step further for PC control. This project explains the requirements for a DIY Infrared control using a PC with a parallel port. Fortunately my IMB Thinkpad laptop has a parallel printer port. The project uses an 8 pin PIC675 which is programmed to initiate the camera's IR function. The schematic is shown below.

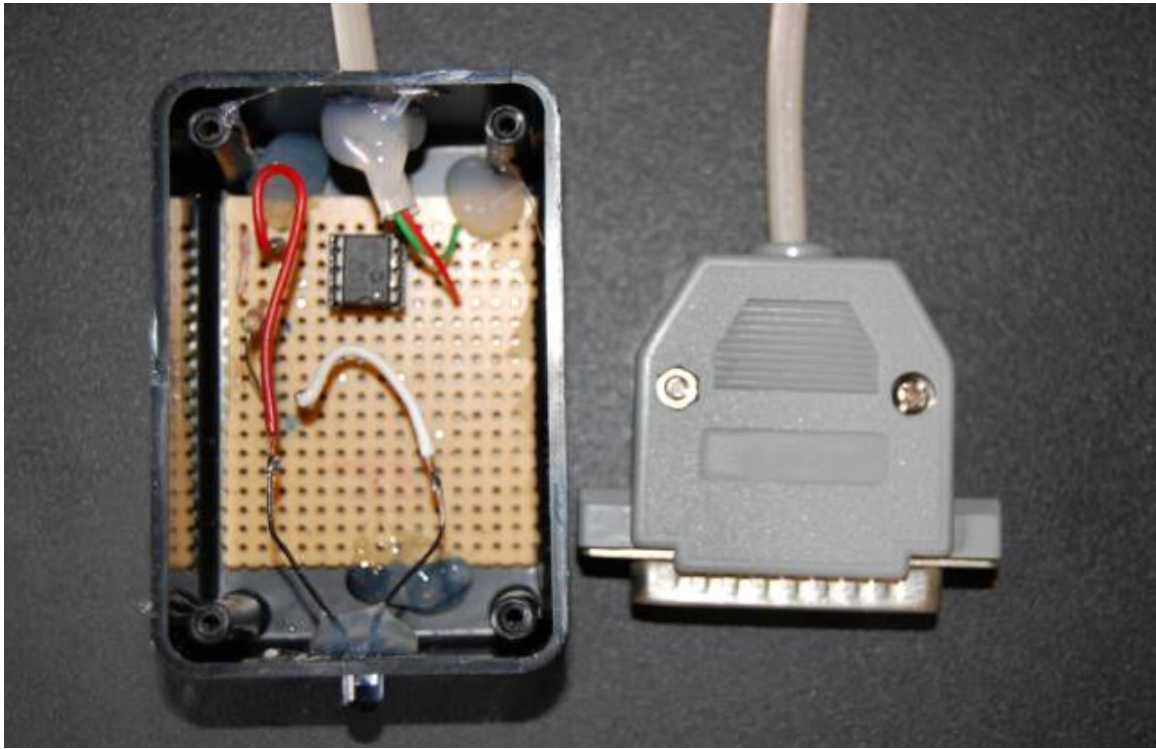


The +5 volt power supply for this is obtained from the parallel port pins 2,3,4 &5 and ground via pin 25 on the 25 pin plug. The software initiates the port and fires the IR unit using 200 ms pulses. R2 is a ¼ watt 82 ohm resistor. The IR Diode was taken from an old TV controller. The battery and switch were replaced with connections to the 25 pin connector to the PC. The PIC is placed in a 8 pin socket.

The project was built on perforated board. The HEX file was flashed into the PIC using ICProg v106B, which is freely available on the internet. You will also need a programmer. If you are not into programming PIC's then have someone do it for you. Just give them the HEX file.

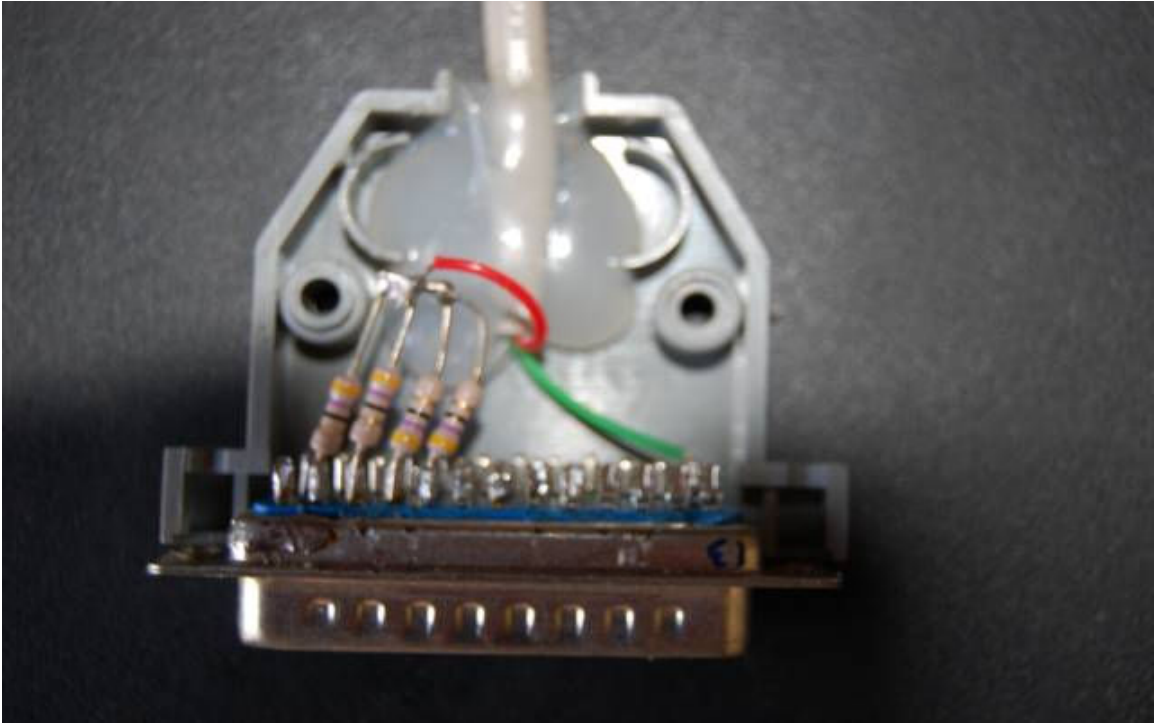
WARNING: The PIC675 uses an internal oscillator for the timing. Before flashing the PIC, READ it and get the calibration word which is located in the last word in code memory. This will be 34xx. The full word may look like this 348C as an example. Should you mess up the programming you will at least be able to re-program the calibration word. [Refer to Jan's web page for full details.](#)

The full interface looks like this. Very simple and very cheap. Here in South Africa the PIC675 costs +/-R15



The box measures 75mm x 50mm.

In the 25 pin connector, four x 47 ohm $\frac{1}{4}$ watt resistors are soldered to pins 2,3,4,&5. The others ends of the resistors are soldered together. The +5 volt supply wire from pin 1 of the PIC675 is connected to the resistors.



The connection in the 25 pin plug to the resistors adds protection to your parallel port and allows a balanced supply with more current availability to the PIC.

Now for the software to fire the IR unit. The program was written in Visual Basic by a very dear friend of mine **Gert Van der Walt**. To run the software on Windows XP you require the following.

NTrig.exe
Portio.dll
Module1.bas

Also required is PortTalk to allow access to the parallel port.

Allowio.exe
porttalk.sys
porttalk.reg

Install Notes

Create a folder say D40IR in c:\ directory and put all the above files in it. Then proceed as follows.

To allow your PC to access the ports which are normally blocked you need to copy porttalk.sys to **C:/Windows/system32/drivers**.
Run the porttalk.reg file
Re-Boot your PC

Visit <http://www.beyondlogic.org/porttalk/porttalk.htm> for more info on porttalk

Open Notepad and write a text file as below:-

```
cd c:\D40IR
Allowio NTrig.exe /a
```

Save the file as a text file to your desk top say as IR.txt
Change the extension to IR.bat. Now you have a batch file to run the NTrig program.

Now when you run the batch file you should get the control faceplate as below



TEST RUN

Connect the IR box to the PC printer parallel port
Set your camera to MANUAL mode
Set your camera to IR function.

Place it say 2 meters in from of the IR box.

When you press **Fire** the camera shutter should open. A second press should close the shutter. The green tab changes from green to red when a pulse is sent

For continuous mode set the exposure time (Period) to say 5 seconds. Default is 30s
Set the number of frames to 5. Default is 10
Press Run.

The camera should expose for 5s. After 5s a pulse is sent to close the shutter. The shutter is opened almost immediately again when a second quick succession pulse (250ms) is sent. This procedures continues till the 5 frames are taken.

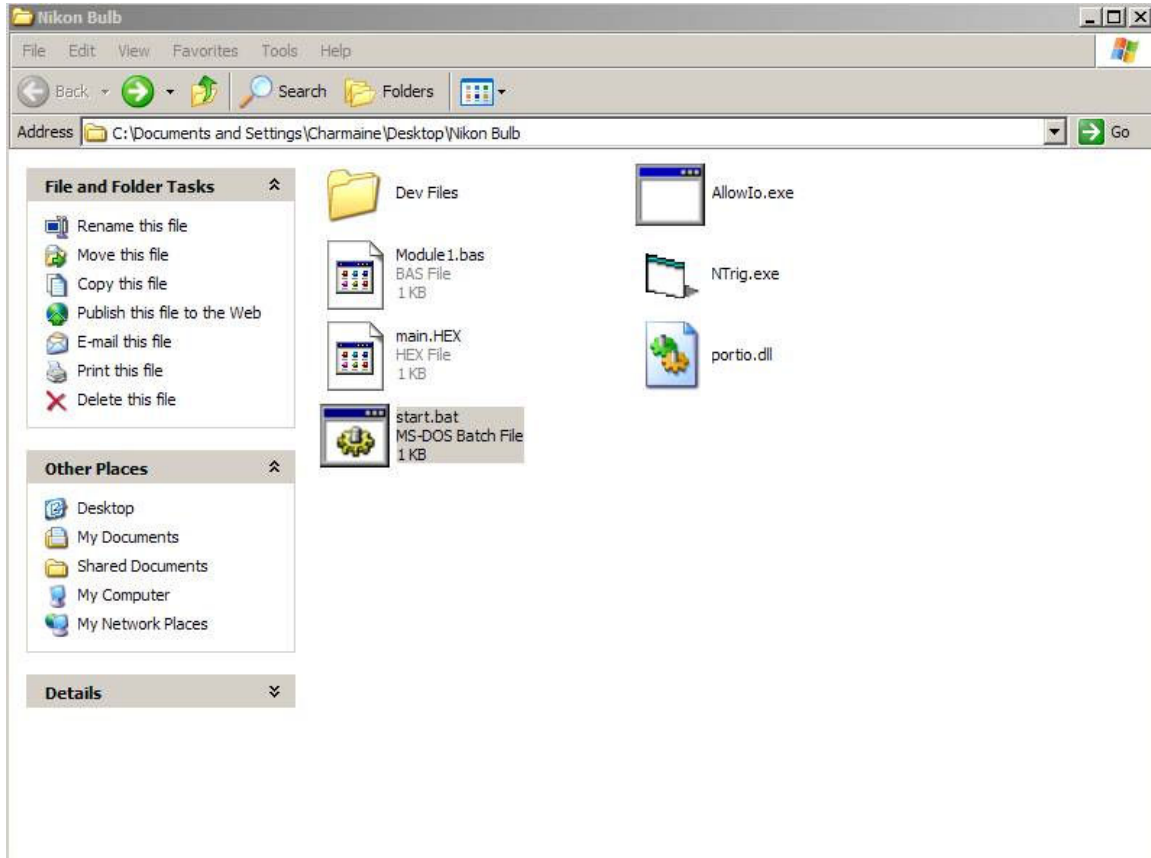
That it. You can now take long BULB exposures with your Nikon which are triggered from your computer.

If you are interested in this you can email me at pete@terrapins.co.za and I will send you the required files (less than 300k).

NTrig.exe
Portio.dll
Module1.bas

You can download the required porttalk files from the net.

The image below shows the dedicated directory and file contents



The unit I have built works very well for my needs. No more manual button pushing of the Nikon KL-L3 infrared unit. Just setup and enjoy while the camera fires away in BULB mode.

NB:- Building and using this project is done entirely at on own risk

Clear skies
Pete
South Africa