
PicGEN is two channel, PIC18 based pulse generator with variable frequency and Duty Cycle adjustment. Control SW is running under Win operation system and communication with hardware is via USB bus. Hardware was developed for UfoPolitics coil radiant energy research.

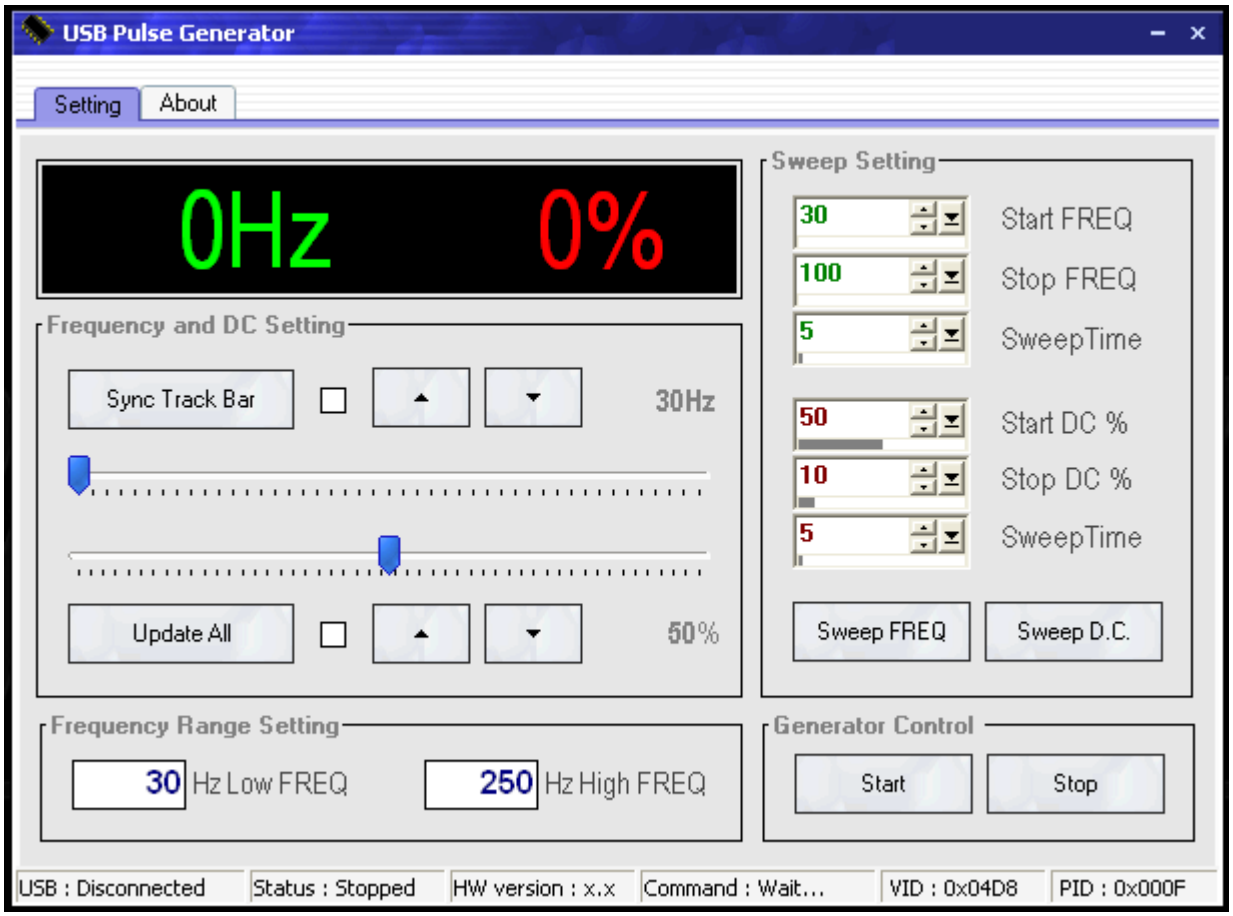
Specification:

Power supply	:	5VDC from USB
Frequency range	:	30 Hz to 25kHz
Duty Cycle range	:	1% to 99%
Output amplitude	:	5VDC
Number of channels	:	2
Galvanic isolation	:	both channels

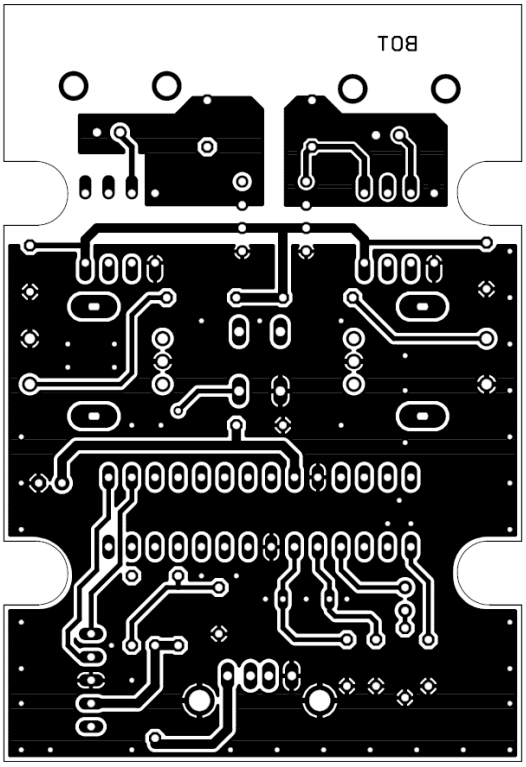
HW Control:

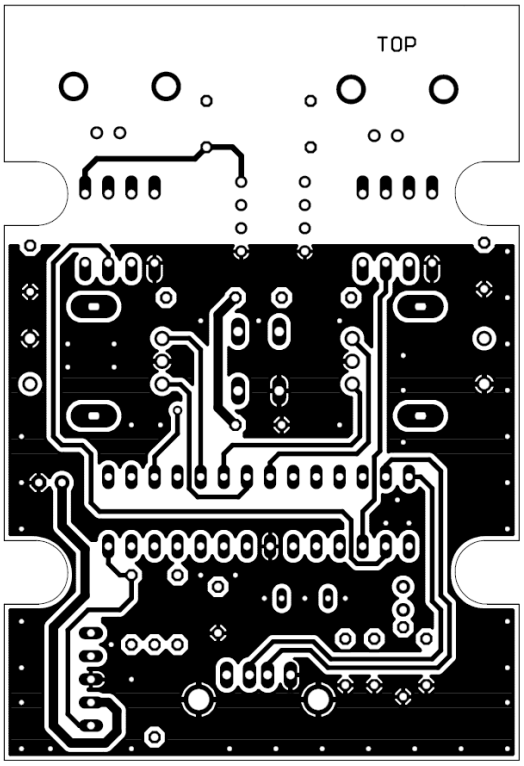
POT for frequency adjustment
POT for D.C. adjustment

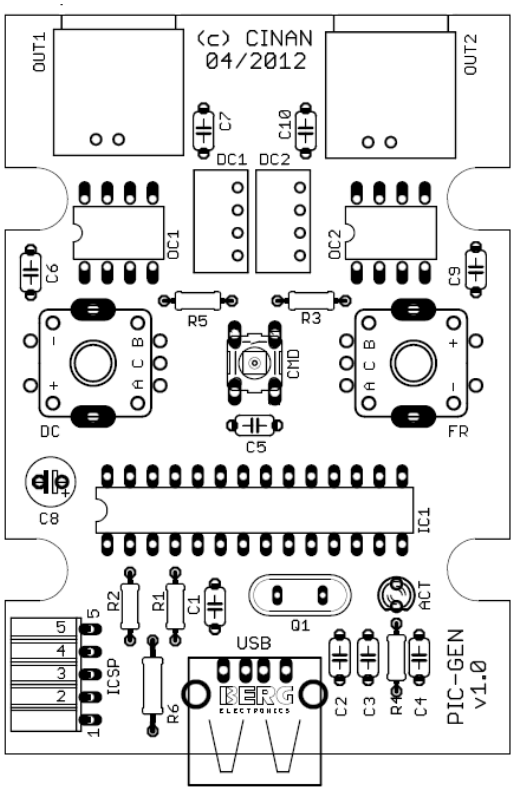
Software Control :

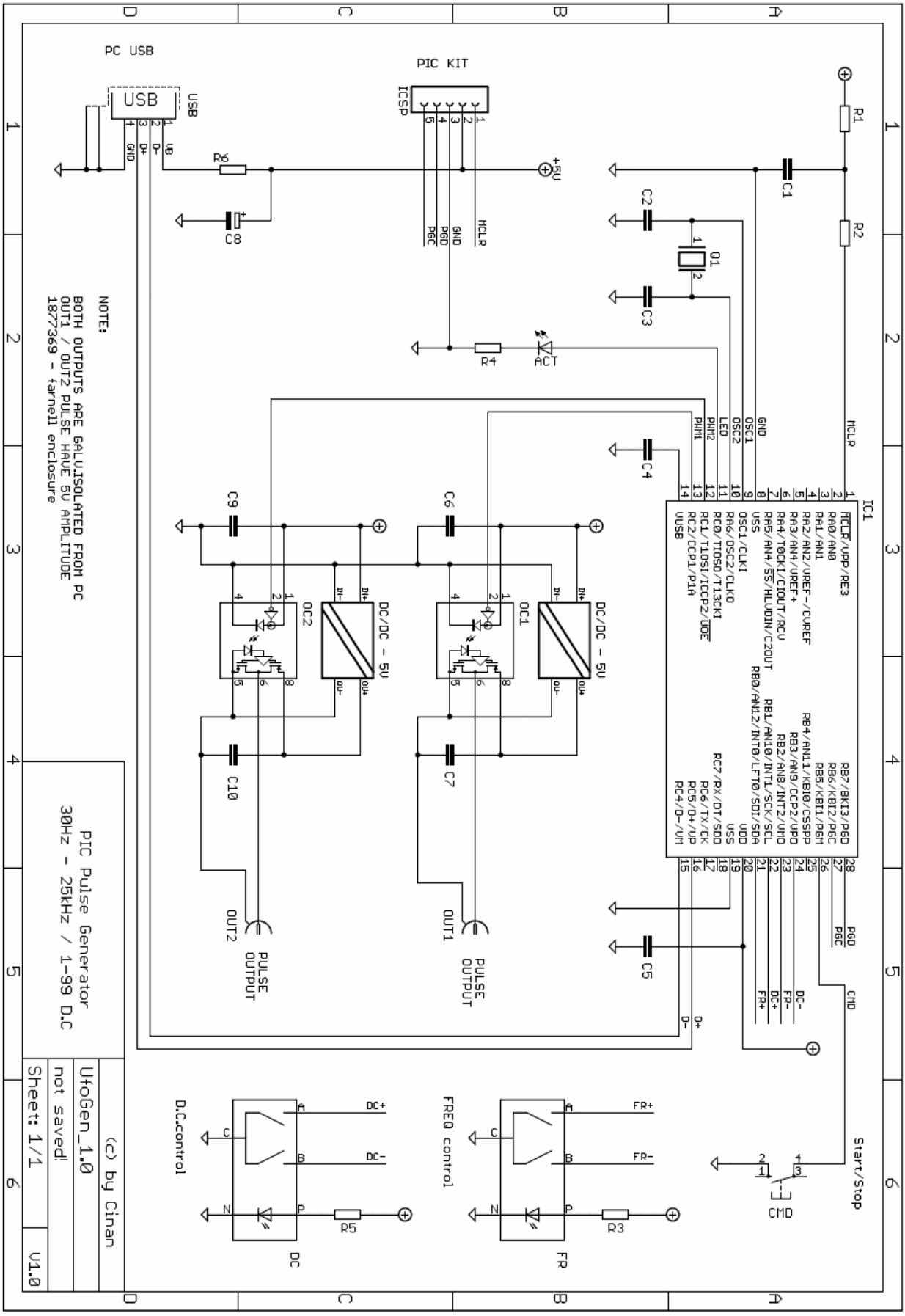


Hardware:


BOT


TOP


OUT1
OUT2
(c) CINAN
04/2012
C7
C10
DC1
DC2
IC1
IC2
C6
C9
R5
R3
CMD
DC
FR
C5
C8
IC1
R2
R1
C1
Q1
ACT
USB
ICSP
R6
C2
C3
R4
C4
PIC-GEN
v1.0


PC USB
PIC KIT
USB
ICSP
R1
R2
R3
R4
R5
R6
C1
C2
C3
C4
C5
C6
C7
C8
C9
C10
Q1
ACT
IC1
MCLP
OSC1
OSC2
LED
PWM2
PWM1
GND
VUSB
VDD
VSS
PGD
PGC
DC-
FB-
DC+
FB+
CMD
D+
D-
OC1
OC2
DC/DC - 5U
OUT1
OUT2
PULSE OUTPUT
Start/Stop
DC.control
FREQ control
DC
FR
NOTE:
BOTH OUTPUTS ARE GALVANISOLATED FROM PC
OUT1 / OUT2 PULSE HAVE 5V AMPLITUDE
1877369 - farnell enclosure
PIC Pulse Generator
30Hz - 25kHz / 1-99 D.C
(c) by Cinan
UfoGen_1.0
not saved!
Sheet: 1/1
V1.0

BOM:

Part	Value	Device
ACT	1200588 - BLUE/10mA	LED3MM
C1	1606109 - M1	C-EU050-024X044
C2	3322348 - 18P	C-EU050-024X044
C3	3322348 - 18P	C-EU050-024X044
C4	1606186 - 220N	C-EU050-024X044
C5	1606109 - M1	C-EU050-024X044
C6	8047285 - 1M	C-EU050-024X044
C7	8047285 - 1M	C-EU050-024X044
C8	1167578 - 47M/10V	CPOL-EUE2.5-6
C9	8047285 - 1M	C-EU050-024X044
C10	8047285 - 1M	C-EU050-024X044
CMD	959698 - B3F TACTILE	B3F-1070
DC	1857564 - ROTARY ENCOD	PEL12S-4-S-F
DC1	8727694 - DC/DC	IE05-XPOWER
DC2	8727694 - DC/DC	IE05-XPOWER
FR	1857564 - ROTARY ENCOD	PEL12S-4-S-F
IC1	9414118 - PIC18F2455-I/SP	PIC18F2455_28DIP
ICSP	1907846 - RECEPTACLE	FE05W
OC1	1495316 - FOD3180	DRIVER
OC2	1495316 - FOD3180	DRIVER
OUT1	1831684 - BNC	1-227161-0
OUT2	1831684 - BNC	1-227161-0
Q1	1701147 - 40MHz	XTAL/S
R1	1812957 - 10K	R-EU_0204/7
R2	1812643 - 1K	R-EU_0204/7
R3	1812938 - 470	R-EU_0204/7
R4	1812678 - 220	R-EU_0204/7
R5	1812938 - 470	R-EU_0204/7
R6	1771968 - 10/0.5W	R-EU_0207/10
USB	1177883 - USB-A	PN87520-S
BOX	1877369 - enclosure	HAMMOND

Order numbers are Farnell components numbers
www.farnell.com

Programmer:

Programmer used in this project is PICkit 3 from Microchip. You can buy it here:

http://www.microchipdirect.com/ProductSearch.aspx?Keywords=PG164130

http://uk.farnell.com/microchip/pg164130/programmer-in-cct-debugger-pickit/dp/1771323

http://search.digikey.com/us/en/products/PG164130/PG164130-ND/2171224

PICkit 3 Stand Alone Programmer Application for Windows can be downloaded via Microchip web site here:

http://www.microchip.com/stellent/idcplg?IdcService=SS_GET_PAGE&nodeId=1406&dDocName=en538340&redirects=pickit3

or go to Microchip website and search for PICkit 3.

Installing of PICkit 3 software(one time operation):

1. Unpack PICkit 3 Programmer Setup.zip into folder
2. Install PICkit 3 Setup.exe from that folder
3. Connect PICkit 3 hardware into USB port
4. Wait for system to install driver for PICkit 3
5. Run PICkit 3 Programmer software And Select:
   Tools – Download operating System
6. Wait for operation to finish
7. Exit PICkit 3 software

Programming of PIC firmware:

1. Plug PICkit 3 into ICSP socket on PCB. Arrow to pin 1 on PCB
2. Plug USB cable from PICgen to PC
3. Run PICkit 3 Programmer software from Microchip folder
4. Select device : PIC18F2455
5. Press button ‘Auto import hex + write devices’
6. Select PICgen.hex file
7. Wait for programming to finish (2-3 sec)
8. Close PICkit 3 software and unplug PICkit 3 programmer
9. Firmware is updated

Design Package:

Whole design package with all files necessary to build / run the system can be downloader here: