The G1SLE beacon controller is a compact microprocessor controlled beacon keyer able to generate Morse, Baudot and Feld Hell beacon messages both as keying and audio outputs.

The full Morse and Baudot alphabets are supported including punctuation.

Morse speed is programmable from 5 to 35 WPM

Baudot speed is fixed at 50 baud.

The MCW (on/off keyed) audio output tone is 800hz

AFSK shifts of 170, 425 and 850Hz are supported.

Programming is by windows hyperterminal or similar terminal emulator over RS232 at 9600 baud.

Assembly instructions.

Assembly is greatly simplified by the double sided, through plated, resist masked and pre-tinned PCB. For the simplest assembly you are recommended to follow the 8 steps below.

1. Fit all 20 surface mount passive components on the lower side of the PCB as indicated on the =beacon8&9.pdfø overlay.

2. Fit the MAX7480 filter IC. Note that the 24c02 IC is not currently required and should not be fitted.

3. Fit the 2 x 1n4148 diodes on the upper side of the PCB, observing the correct orientation as shown on the =beacon0&1.pdfø overlay.

4. Fit the 24Mhz crystal, spacing it slightly off the surface of the PCB to avoid shorting the case to the PCB pads.

5. Fit the 40 pin IC socket, then the MAX232 and the 8 way DIL switch, again be careful to observe the correct orientation.

6. Fit the 7805 regulator, securing it to the PCB with an M3 screw and nut if desired.

7. Fit 3 x BC183 (eq) transistors, observing the correct orientation as described on the manufacturer datasheet.

8. Fit the 4 x LEDøs again observing the correct orientation by fitting the long lead closest to the limiting resistors.

9. Finally fit the 10k 22 turn preset and the 2 x 9way D connectors

Connection details

All connections to the G1SLE are via the 2 x 9 way D connectors.
The connector adjacent to the MAX232 IC is designated as COM1.
This connector is wired as a standard RS232 serial port DCE and should be
connected to an RS232 DTE (PC) for programming by a straight cable with no
crossovers.

The second D connector is the interface to your beacon radio and is terminated as
follows

1. Inhibit input. This active low input will freeze operation of the beacon until
    the input is released. This will be particularly useful for 23cms
    repeater/beacon groups since the PTT output form a repeater controller (such
    as the G1SLE Mk2 controller) is ideal for suspending beacon operation when
    the repeater becomes active.
2. Reserved. This open collector output is currently unused.
3. PTT out. This open collector output will activate 250mS before any beacon
    text is sent and will release 250mS after the end of the beacon.
4. Key out. This open collector output will pull to ground to provide a morse /
    FSK beacon key output.
5. AF out. This output provides a DC blocked audio output of AFSK / MCW
    tones at up to 2v P-P, level is controlled by the 22t preset.
6. Alarm input. This active low input will switch the keyer to send the alternative
    ÷alarm activeø texts.
7. Not used. No connection.
8. Gnd. Connect to supply ground
9. +ve supply. Connect to a noise free DC supply of 6 to 24 volts at
    approximately 100mA.

Config DIL Switch.

The DIL switch has the following functions

1. On ó Beacon will start up in program mode (programming operation described
below)
2. On ó Morse beacons enabled.
3. On ó RTTY beacons enabled.
4. On ó Feld Hell beacons enabled.
5. Reserved.
6. Reserved.
7. Grouped with 8 below to control audio output as follows. 7 ó ON, 8- OFF =
425Hz AFSK, 7 - OFF, 8 ó ON = 170Hz AFSK, both OFF = 850Hz AFSK,
Both ON = 800Hz on/off keyed tone output.
8. See 7 above.

LED outputs.

1. 1 second 'tick' Should flash at roughly 1Hz. Disabled during 'super beacons'
2. Suspended. Flashes rapidly when the inhibit input is active.
3. Key. Flashes as key output is active.
4. Reseved – not currently used.

Programming.

All beacon text and various other configuration parameters are programmed via the serial port and are then held in EEPROM.
To enter program mode switch on DIL SW1, connect the beacon COM port to your PC serial port and start up Hyperterminal (or similar) selecting 9600 baud, 8 data 1 stop, no parity, no handshaking, no local echo. Now power up the beacon PCB.
Your terminal should display

G1SLE Beacon keyer Rev1.0

Normal beacon text of up to 255 characters A-Z, 0-9 plus punctuation accepted

You should now enter your desired regular beacon text of up to 255 characters.
Characters A- Z, 0-9 plus ! õ & ÷( ) + , - . : ; = ? @ and $ are acceptable, however you should note that some of these characters are not supported in both Morse and Baudot alphabets. Unsupported characters will be replaced with a space.
To generate a CR+LF (only supported in Baudot) enter a ^.
When you have entered your beacon text press 'enter'

G1SLE

The controller will now respond with

Super beacon text of up to 255 characters A-Z, 0-9 plus punctuation accepted

Enter your desired 'super beacon' text. Super beacons can be sent every X normal beacons and will typically contain a more verbose form of the regular beacon

G1SLE AMATEUR RADIO BEACON^LOCATED IN BOLSOVER, DERBYSHIRE, IO93IF63

The controller will respond with

Morse speed in WPM 5 – 35

Enter the desired speed for all Morse in WPM.

18

The controller will now respond with

Interval between start of beacons in seconds 3 to 3600

Enter the interval in seconds between the start of regular beacons, note that this must be somewhat longer than the duration of the beacon, if this interval is set too short one beacon may start before the current one has finished resulting in unpredictable behaviour.

300

The controller will now respond with

Send 'super beacon' every 0 to 254th regular beacon

Enter the desired interval for ÷super beacons, 0 will disable super beacons.

5

The controller will now respond with

All done programming!

Thats it, your beacon controller is sending beacons already, but dont forget to set the desired DIL switch options and to set DIL SW1 back to OFF.