



# The **Smart Gun** electronic tag board.

*Designed by, built by, and obtainable from: Dave Bodger.*

## **Configuration by RS232 Comms (v1.6)**

It is now possible to configure your SmartGun via a connection to any programmable device that supports RS232 communications. Such as a lap-top PC or personal organiser.

Software is already available for the Psion Organiser 3a and is under development for the PC.

Details are included here to allow you to write your own software if you prefer.

Communication is fixed at 2400 baud, 8 data bits, 1 stop bit, no parity, no handshaking (8N1).

Configuration variables are contained near the start of the memory of the PIC16C84 microcontroller.

In this document hexadecimal notation will be used. The letter 'H' at the end of a number denotes a hexadecimal value. A number without a suffix is to be considered decimal - i.e. 10H=16.

There are 15 bytes of configuration information, from address 16 (10H) up to address 30 (1EH).

Attempting to read addresses outside of this range will return an undefined value. Attempting to write to addresses outside of this range may affect the operation of the microcontroller to such an extent that even powering off/on may not recover it (reprogramming may be required); so please don't do it. Similarly, writing values to an address which are outside of the normal range for that variable may cause problems, so don't do it. Follow the tables of values listed on the next page.

The values may be read individually one byte at a time from the SmartGun by sending the command character, ASCII uppercase 'R' (52H), followed by a single character whose ASCII value is the number of the configuration variable you wish to read. You will receive a single byte back whose ASCII code value is that of the variable.

e.g. The following sequence of bytes will examine the current value of 'Ammo'.  
52H, 16H.

If 'Ammo' contained the value 99 (63H) then the following byte would be transmitted from the SmartGun:  
63H.

New values may be written to the SmartGun by sending the command character, ASCII uppercase 'T' (54H), followed by the address where the byte is to be written and then the byte itself.

This sequence will set 'Max Clips' to the value 7.  
54H, 11H, 07H.

Any questions please phone or email me.



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<u>Address</u>	<u>Description</u>	<u>Possible values</u>
10H	Maximum Ammo per clip.	01H...63H, FFH=unlimited continuous fire.
11H	Maximum Clips spare.	00H...0EH, 0FH=unlimited clips.
12H	Time to reload	01H...FFH in 0.25 second increments.
13H	Inter-Shot delay	01H...FFH in 10 millisecond intervals.
14H	Shot Pulse	12H...FFH (18 per 10 milliseconds).
15H	Fire Selector	01H...09H, 00H=full auto.
16H	Current Ammo	00H...63H, FFH=unlimited continuous fire.
17H	Current Clips	00H...0EH, 0FH=unlimited clips.
18H	Display Brightness	01H...08H, 1=dim, 8=bright, power-on default setting.
19H	LoByte	Data to be transmitted.
1AH	HiByte	Data to be transmitted.
1BH	Xsum	Checksum for transmitted data.
1CH	Options flags	See table of bit values.
1DH	Reserved	Reserved.
1EH	Reserved	Reserved.

## List of modulation frequencies (Hz) all using the 57600Hz carrier

- 248 = Laser Challenge tag frequency  
1800 = Standard WoW tag frequency

## Options Bits table (Bit 0 is the least significant bit)

<u>Bit</u>	<u>Use</u>	<u>Changeable</u>
0	Disable power-on configuration change.	Yes
1	Disable grenade launcher.	Yes
2	Disable grenade reloads.	Yes
3	Disable fire selector changes.	Yes
4	Disable sound & muzzle flash pulse.	Yes
5	Disable silencer #8 key.	Yes
6	WoW (0) or Laser Challenge (1) mode bit	Yes
7	Disable gun firing, lockout signal is being received from sensor.	No