

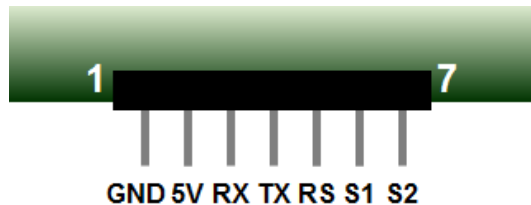
TV Character Generator

Quick Start Guide

Thank you for purchasing this unit. Please read carefully this quick guide before using it for the first time, to familiarize yourself with the features and connections of the board. A detailed guide can be found at:

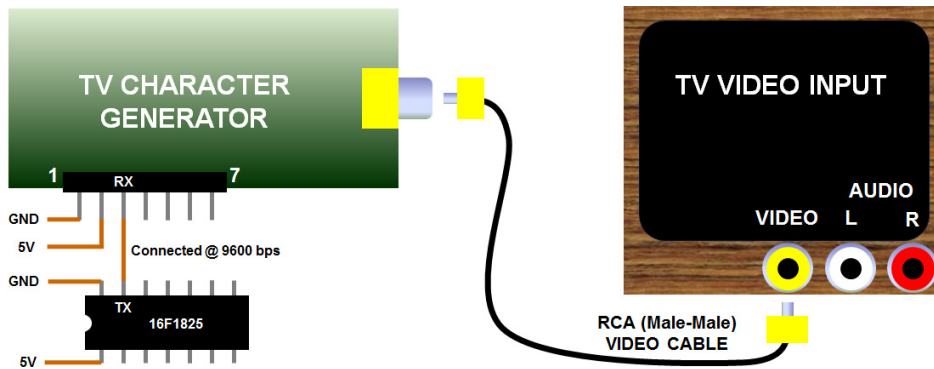
<http://magusporta.com/shop/tvgen/tvgen.html>

1.- Connector pins



Pins 1 and 2 are connected to the power supply (GND and 5V, respectively), while pin 3 is the serial input connection (RX). These are the basic minimum connections required for the circuit to work. Pin 4 (TX) is not currently used. Pin 5 is used to RESET the unit (RS), and pins 6 and 7 select the serial communication speed (S1 and S2). The RESET pin is active low, and is internally connected to 5V by a 10kΩ resistor, so it can be left open if there is no need to reset the circuit. S1 and S2 are internally connected to GND by 10kΩ resistors, so the unit will work stable at 9600 bps if these pins are left open.

2.- Basic connection



Only the first 3 pins are required for a basic connection. The complete setup is shown including the TV set, and these are the minimum connections required to start working with this unit. If a faster serial communication is required, selecting the appropriate combination of S1 and S2 will change the speed. This can be done at any time, just make sure that there is no data transmission while the change is executed.

3.- Speed selection

S2	S1	Speed
0	0	9600 bps
0	1	19200 bps
1	0	38400 bps
1	1	57600 bps

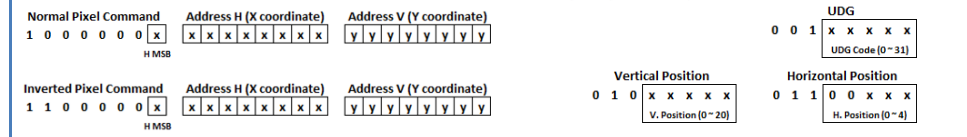
The standard convention is used here, where "0" means connected to GND, and "1" indicates a connection to 5V.

4.- Software commands

MSB								LSB	Command	Address H	Address V	Data 0	Data 1	Data 2	Data 3	Data 4	Data 5	Data 6	Data 7
0	0	0	0	0	0	0	1	Normal Character	1	x	x	x							
0	0	0	0	0	0	1	0	Inverted Character	2	x	x	x							
0	0	0	0	0	1	1	1	Clear to black	3										
0	0	0	0	0	1	1	0	Clear to white	4										
0	0	0	0	1	0	1	1	Brightness High	5										
0	0	0	0	1	1	0	1	Brightness Low	6										
0	0	1	x	x	x	x	x	UDG (32 ~ 63)	32+			x	x	x	x	x	x	x	x
0	1	0	x	x	x	x	x	Vertical Position	64+										
0	1	1	0	x	x	x	x	Horizontal Position	96+										
1	0	0	0	0	0	0	x	Normal Pixel	128+	x	x								
1	1	0	0	0	0	0	x	Inverted Pixel	192+	x	x								

Length: 4 bytes, 4 bytes, 1 byte, 1 byte, 1 byte, 1 byte, 9 bytes, 1 byte, 1 byte, 3 bytes, 3 bytes

Address H (horizontal): 40 Characters, 320 Pixels
Address V (vertical): 24 Characters, 192 Pixels



5.- Test program (created with CCS C, programmed in a PIC16F1825)

Main program (simple_test.c)

Configuration (simple_test.h)

```
#include <simple_test.h>

//This will display the capital letter A in the middle of the screen//

void main() {
    delay_ms(20); //Allows TV Character Generator module initialization
    putc(1); //Command = 1 - white character over a black background
    putc(19); //X position
    putc(11); //Y position
    putc(65); //ASCII code for capital letter A
    while(true);
}
```

```
#include <16F1825.h>
#device ADC=10

#FUSES NOMCLR //Master Clear pin used for I/O
#FUSES NOBROWNOUT //No brownout reset
#FUSES NOLVP //No low voltage prgming, B3(PIC16) or B5(PIC18) used for I/O

#use delay(internal=32MHz)
#use rs232(baud=9600,parity=N,xmit=PIN_A0,rcv=PIN_A1,bits=8,stream=PORT1)
```

The connection will be established at the lowest speed (9600), so both S1 and S2 will remain open. A white capital letter A should appear in the middle of a black screen when the program runs. The generator requires around 20 milliseconds to perform the initialization tasks upon power-up or reset, so please make sure that the external device waits at least this amount of time before attempting any communication; after this, all communications may proceed without delay.