

## Communication Information

This display uses a built-in PIC16F690 for serial communication.

100mS delay is required upon power-up for the built-in PIC to initialize the display controller.

### I2C protocol:

To enter the I2C mode, place a jumper on R1.

SDA and SDK have pull-up resistors (10K Ohm) on R7 and R8.

The default I2C address is 80 (50 hex). The I2C address can be changed to any 8-bit value by command function, with the exception that the LSB (least significant bit) must always be '0'. Once the I2C address has been changed, it will be saved in the system memory, and it will revert back to the default address if either RS-232 or SPI protocol is selected.

The I2C interface is capable of receiving data at up to 100KHz clock rate.

### SPI protocol:

To enter the SPI mode, place a jumper on R2.

SPI mode has a normally high level idle clock. When Slave Select is LOW, data is sampled on the rising edge of the Clock.

The SPI interface is capable of receiving data at up to 100KHz clock rate.

### RS-232 (TTL) protocol:

To enter the RS-232 mode, both R1 and R2 should be open.

The RS-232 signal must be 5V TTL compatible. Communication format is 8-bit data, 1 Stop bit, no parity, no hand-shaking. Default BAUD rate is 9600, and is changeable with a command function. Once the BAUD rate has been changed, it will be saved in the system memory, and it will revert back to the default address if either I2C or SPI protocol is selected.

## ASCII Text

To display normal text, just enter its **ASCII** number. A number from **0x00 to 0x07** displays the user defined custom character, **0x20 to 0x7F** displays the standard set of characters, **0xA0 to 0xFD** display characters and symbols that are factory-masked on the ST7066U controller. 0xFE is reserved.