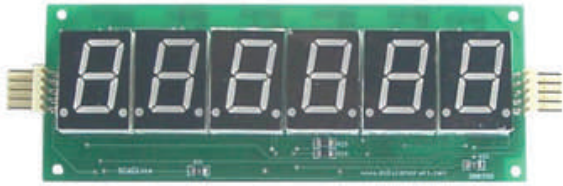SILICON CRAFT

SC6Dlite—6 Digits Serial LED Display Module

- 0.8" Red/Green LED Digits
- RS232 and TTL Interface
- Display ASCII Data
- Display long and short integer
- Addressable and Cascadable
- Non Volatile Memory Storage

GENERAL DESCRIPTION

SC6Dlite is a serial LED display module that accept serial data from any host device and display the received characters.

Data can be in the form of ASCII, 32 bits long integer and 16 bits short integer.
Display range –99999 to 999999.

The module contain a programmable address and up to 255 modules can be cascaded in daisy chain style.

Serial connection can be TTL or RS232. Baud rate is programmable to 9600 bps, 19200 bps or 38400 bps.

Key Features

- Individual Segment Control
- ASCII characters mode
- 32 bits Signed and Unsigned Long Integer
- 16 bits Signed and Unsigned Short Integer
- Decimal Point Control
- Save and restore data from memory
- Dimmable LED Brightness
- Addressable and cascadable

SERIAL COMMAND

Individual Segment Control

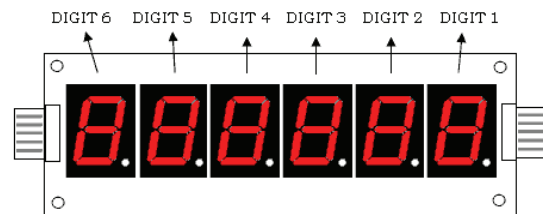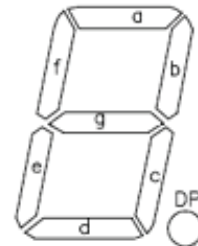Each LED segment can be individually turn on or off.

Command format

[uid] ['a'] [Digit 6 Segment Data] [Digit 5 Segment Data] [Digit 4 Segment Data] [Digit 3 Segment Data] [Digit 2 Segment Data] [Digit 1 Segment Data]

Segment Data bit arrangement

f c g b DP e d a

Where segment f is the Most Significant Bit and segment a is the least significant bit

Example :

Character F segment data is

Binary 10100101
Hexadecimal 0xA5

Display ASCII characters

Supported characters : -

Numeric 0 to 9

Alphabets A,b,C,c,d,E,F,H,h,I,J,L,n,O,o,P,r,S,t,U,u,y, -

Command format

[uid] ['b'] [6 ASCII Characters]

Note : Sending unsupported character will cause the particular character blanked.

Example:

Show "HELP12"

Send uid 0x62 0x48 0x45 0x4C 0x50 0x31 0x32

Decimal Points Display Control

Command format

[uid] ['c'] [dpctl]

Turn off all decimal points : dpctl = 0x00
Turn on all decimal points : dpctl = 0x3F
Turn on decimal point 1 : dpctl = 0x01
Turn on decimal point 1 & 3 : dpctl = 0x05

Display 32 bits Long Integer Number

Command format

Unsigned integer : [uid] ['d'] [32 bits unsigned integer]

Maximum display value : 999999 or 0x000F423F

Example

To display 999999

Send uid 0x64 0x00 0x0F 0x42 0x3F

Note : Sending value larger than 999999 will cause overflow and display shows " - - - - - - "
Leading zero is automatically blanked

Signed integer : [uid] ['e'] [32 bits signed integer]

Display range –99999 to 999999

Example

To display - 256 (0xFFFFFF00)

Send uid 0x65 0xFF 0xFF 0xFF 0x00

Display 16 bits Integer Number

Command format

Unsigned integer : [uid] ['f'] [16 bits unsigned integer]

Maximum display value : 65535

Example

To display 64261 (0xFB05)

Send uid 0x66 0xFB 0x05

Note : Leading zero is automatically blanked

SC6Dlite User's Manual

Signed integer : [uid] ['g'] [16 bits signed integer]

Display range −32768 to 32767

Example

To display - 256 (0xFF00)

Send uid 0x67 0xFF 0x00

Communication Protocol

Default baud rate is 9600 , 8 data bits , no parity , 1 stop bit
Default uid is 255

The uid and baud rate is programmable with command

[0x1E] [0x1E] [baud] [uid]

Where baud = 36 for 9600 bps
      Baud = 18 for 19200 bps
      Baud = 9 for 38400 bps

Display shows "   SEt" when programming is done. You need to reset the display by turn off then turn on the display module for the changes to takes effect.

Settings are stored in the non volatile memory and remains unchanged until next setting.

The baud rate and uid setting is shown briefly during each power up cycle

"b 9600" followed by "Id 255"

Command Delay

A delay of 10ms is required before next command can be send.
Delay requirement is reduced to 5 ms and 3 ms if the baud rate is changed to 19200 bps and 38400 bps respectively.

Save and Restore Display Value

Up to 20 non volatile memory storage space is available. Each is 6 bytes wide

Command [uid] ['s'] [page] save the current display value onto memory location pointer by "page"

These stored value can be restored by command

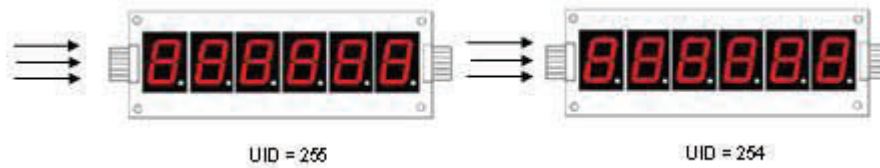[uid] ['r'] [page]

Data on page 0 will be displayed on power up.

Connector Pin Out

Connector J1 is the input port. Both TTL and RS232 interface are available. Data from the host device is transmitted to the Receive Pin.

Connector J2 is the output port to the next module in the chain as shown below

Up to 255 modules can be cascaded to form the daisy chain. Each module in the chain must contain an unique uid that can be programmable.

Dimming the Display

LED brightness can be dimmed by command [uid]['n'] . The brightness is then reduced to 50% of full brightness. To restore to full brightness send command [uid]['n'] again.

SC6DliteAPP software

A free software is available from www.siliconcraft.net/download.htm to test and configure SC6Dlite display module. This software works on Windows 98, XP and 2000.
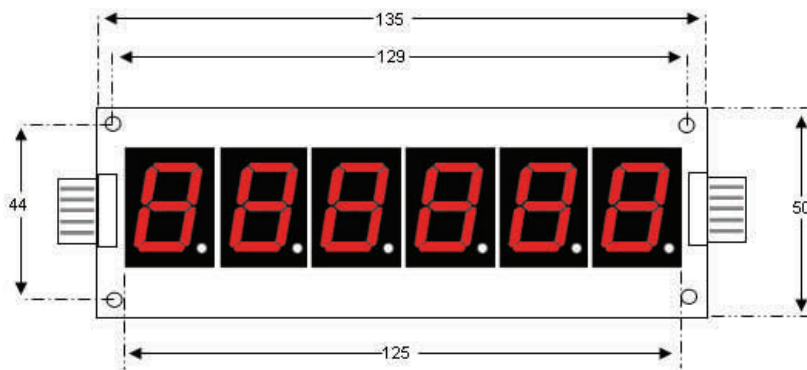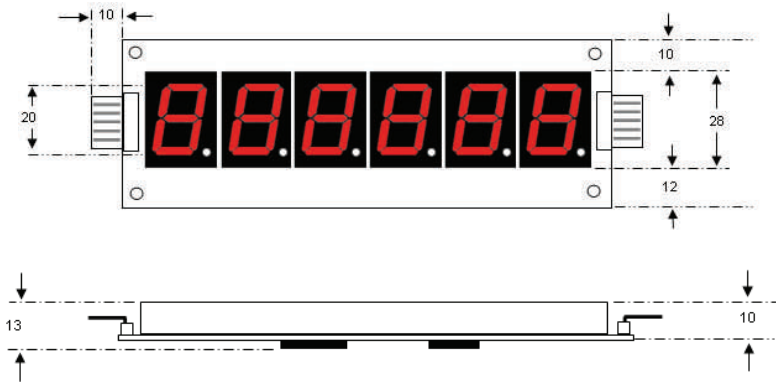
A RS232 port is required.

Electrical Specification

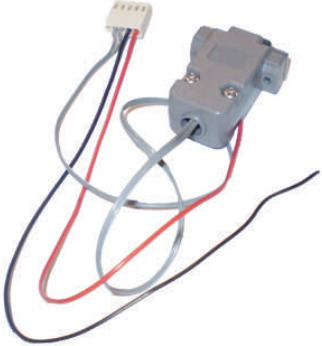|	
Operating voltage	5VDC +/- 10%
Average current consumption	200mA
Operating Temperature	0ºC to 70ºC
Maximum voltage on TTL input	5.5V
TTL output high level voltage	3.3V
Maximum cable length for RS232	3 meters

Mechanical Dimension (mm)

Mounting Holes Diameter : 3 mm

Available Accessories

Power and RS232 Connector
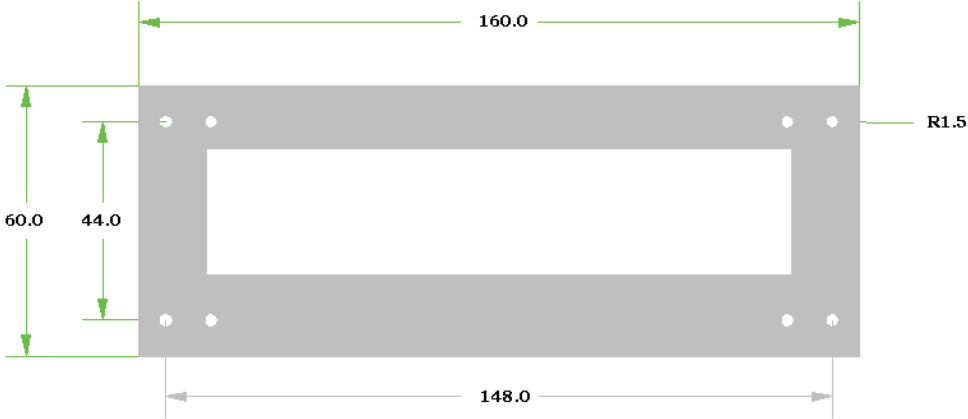
Mating Connector for J1 / J2 with crimping pins

Serial Link Cable for Cascading two SC6Dlite modules

Aluminum Mounting
Kit with Acrylic Filter

Mounting Kit Dimension
(mm)
Thickness 1.5 mm