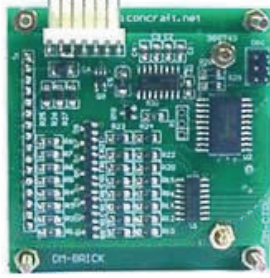
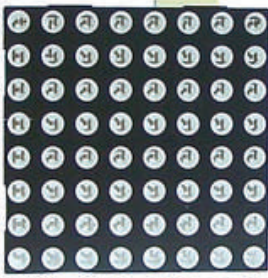




## SCDM88 - 8x8 Serial LED Dot Matrix Display Module



- 8x8 Red LED Dot Matrix
- RS232 Interface
- Simple Serial Command
- Built in ASCII characters font
- 4 Built in Animation
- 60mm x 60mm
- 10 user's define characters/bitmap
- Scrolling and Animate Messages
- 20 characters Message Storage

### General Description

SCDM88 is a 8 x 8 dot matrix LED module that can be easily controlled with simple serial command.

It accepts data from any host device with RS232 interface. Data can be ASCII character or bitmap.

It features both 5x7 and 6x8 characters font. Built in ASCII characters font bitmap plus 10 user's defined characters or bitmaps.

Scroll or Animate 20 characters message with 4 speed selection

Programmable start up mode.

### Serial Interface

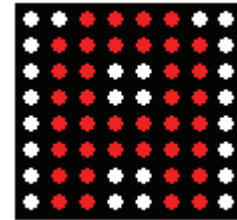
One wire RS232 , baud rate 9600 bps , 8 Data Bits, No Parity , 1 Stop Bit

### Serial Command Summary

Command	Code
Show Single ASCII Character	[ 0xFE ] [ ASCII Character ]
Scrolling Message	[ 0xFD ] [ 20 ASCII Characters ]
Show 8 x 8 Bitmap	[ 0xFC ] [ 8 Bytes Bitmap ]
Animate Message	[ 0xFB ] [ 20 ASCII Characters ]
Set Scrolling/Animation Speed	[ 0xFA ] [ Speed ]
Save Current Screen	[ 0xF9 ] [ Page ]
Show Built in Animation	[ 0xF8 ] [ Animation Page ]
Set Default Mode	[ 0xF7 ] [Mode]
Set Default Speed	[ 0xF6 ] [ Speed ]
Save Scroll/Animation Message	[ 0xF5 ] [ Message ]

## Show Single ASCII Character

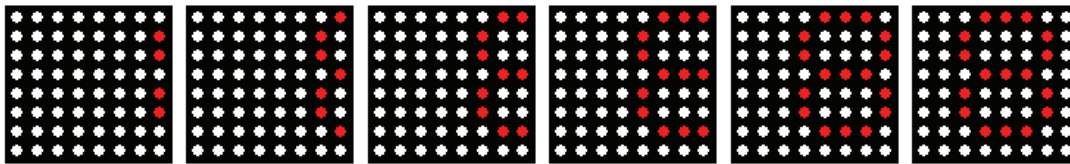
,	-	.	/	0	1	2	3	4	5	6	7
8	9	:	;	<	=	>	?	@	A	B	C
D	E	F	G	H	I	J	K	L	M	N	O
P	Q	R	S	T	U	V	W	X	Y	Z	[
\	]	^	_	`	a	b	c	d	e	f	g
h	i	j	k	l	m	n	o	p	q	r	s
t	u	v	w	x	y	z					



Example : Display 'A'  
Send [0xFE] [0x41]

## Scrolling Message

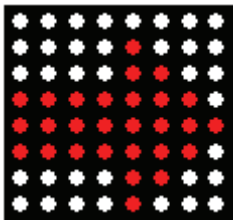
Scroll message of up to 20 characters. Scrolling start from right to left.  
Selectable scrolling speed of fast, nominal and slow.



Example : Scroll "8251" Send [0xFD][0x38][0x32][0x35][0x31]

## Display 8 x 8 Bitmap

You can send a 8 x 8 bitmap data to be displayed. This 8 x 8 data can be saved on the built in non volatile memory for later retrieval.



Example :

Bitmap for the arrow sign is [0x83][0x83][0x83][0x83][0xEF][0xC7][0x83][0x01]

To display this send

[ 0xFC ] [0x83][0x83][0x83][0x83][0xEF][0xC7][0x83][0x01]

Bitmap data can be easily generated using the DotMatrixGen Software ( discussed later )

## Custom Characters

10 memory slots available to store user's defined characters. Each character consist of 8 bytes data.  
To store the character , first display them then send [ 0xF9 ] [ Page ]

Where page is 0 to 9.

To retrieve and display stored character, send [0xFE] [ Page ]

Example :

To save the arrow graphic above onto location page 1 ,

Send [ 0xFC ] [0x83][0x83][0x83][0x83][0xEF][0xC7][0x83][0x01]

Delay 25ms

Send [ 0xF9 ] [ 0x01 ]

## Animate Message

Message animation mode display message one character at a time. Message length is maximum 20 characters.

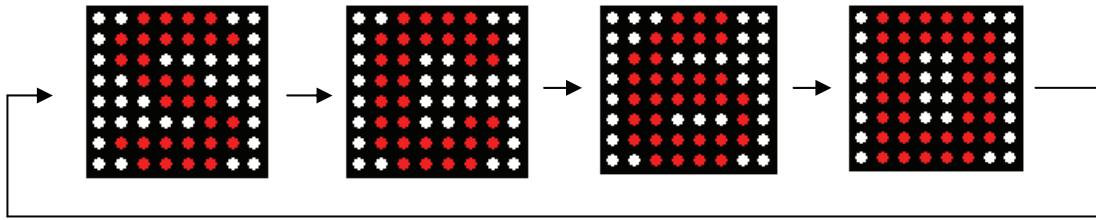
Animation Speed is selectable.

Example:

To animate message "SC6D"

Send [0xFB][ 0x53][0x43][0x36][0x44]

Note : You can insert custom character into the message by inserting 0x00 to 0x09  
For example, to insert custom character 1 between SC and 6D  
Send [0xFB][0x53][0x43][0x01][0x36][0x44]



## Animation/Scrolling Speed

To change the speed of animation and message scrolling use command [0xFA] [ Speed ]

Where speed = 0x39 , 0x31, 0x29, 0x21

0x39 being the slowest ( 1s interval ) and 0x21 the fastest ( 0.125s)

Factory default is 0x29.

To save the speed onto the non-volatile memory, send [ 0xF6 ] [ Speed ]

## Startup Mode

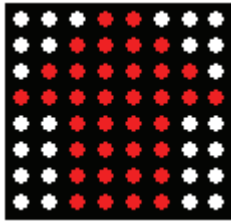
The startup mode of the module is programmable

Send [ 0xF7 ] [ Mode ]

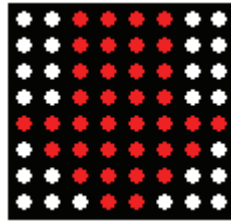
Mode 0	Display Custom Characters 0	( Factory Default )
Mode 1	Scroll Stored Message	
Mode 2	Animate Scroll Message	
Mode 3	Built in Animation 1	( Up Arrow )
Mode 4	Built in Animation 2	( Down Arrow )
Mode 5	Built in Animation 3	( Right Arrow )
Mode 6	Built in Animation 4	( Left Arrow )

To use Mode 1 and Mode 2, you may need to save the message first by using command [0xF5][Message ( 20 characters max ) ]

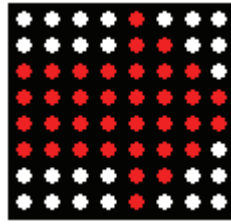
### Built in Animation



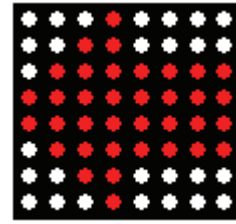
Up Arrow  
[0xF8][ 0x00]



Down Arrow  
[0xF8] [0x01]



Right Arrow  
[0xF8] [0x02]

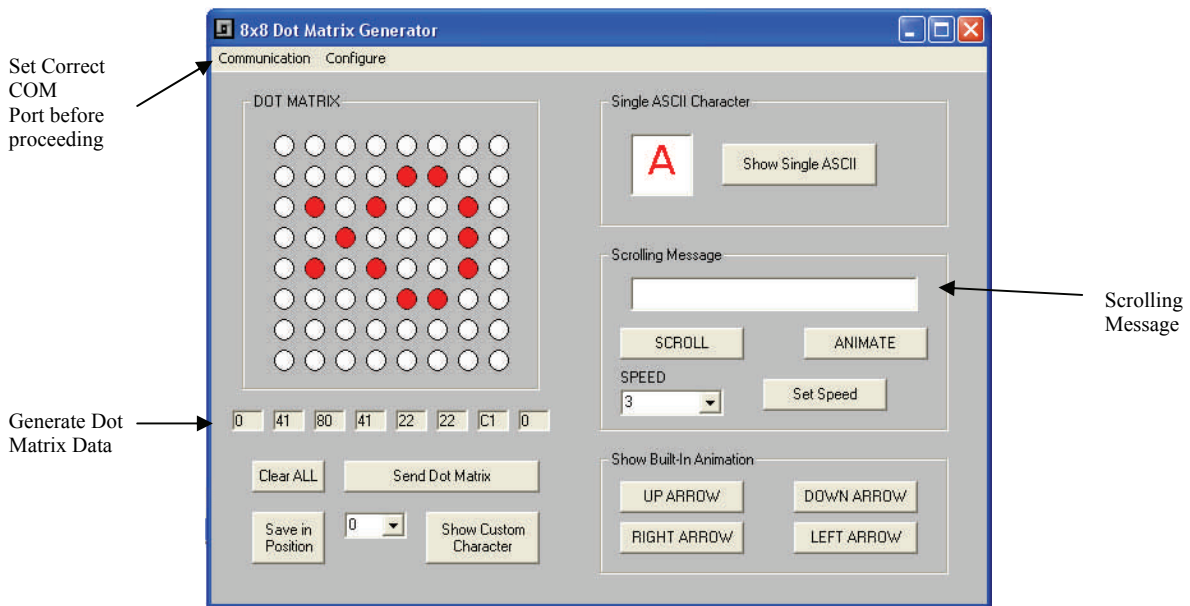


Left Arrow  
[0xF8] [0x03]

### Test and Configuration Software

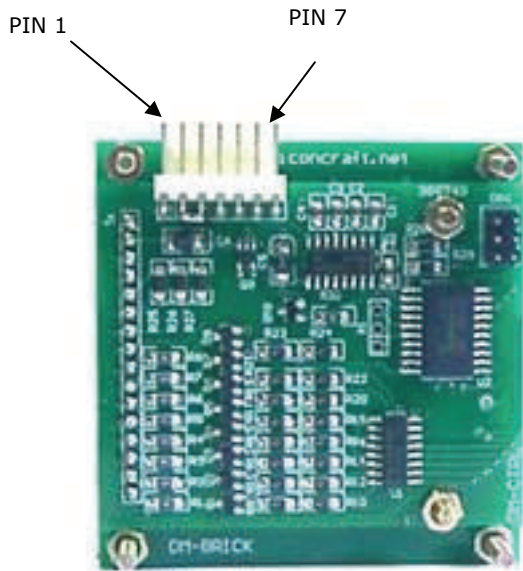
DotMatrixGen Software is available for free from [www.siliconcraft.net/download.htm](http://www.siliconcraft.net/download.htm)  
It works on PC running Windows 98,XP and 2000.

It is created to test and configure SCDM88 module attached to the RS232 Serial Port of the PC



### Delay between command

A delay of minimum 25 ms is needed before the next command can be send.

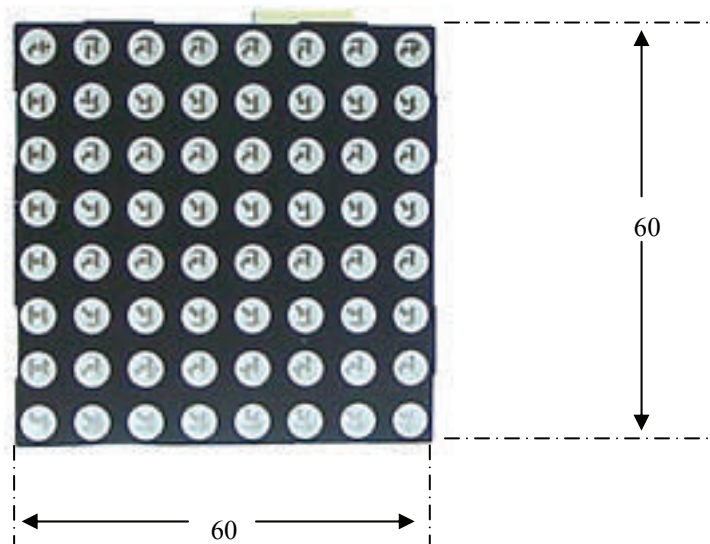


**Data and Power Pin Out**

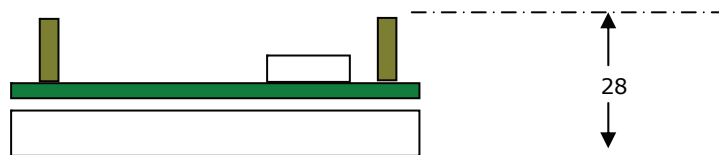
PIN 1	-	5VDC IN
PIN 2	-	5VDC IN
PIN 3	-	5VDC IN
PIN 4	-	GND
PIN 5	-	GND
PIN 6	-	RS232 Transmit (Data from LED module)
PIN 7	-	RS232 Receive (Data to LED Module )

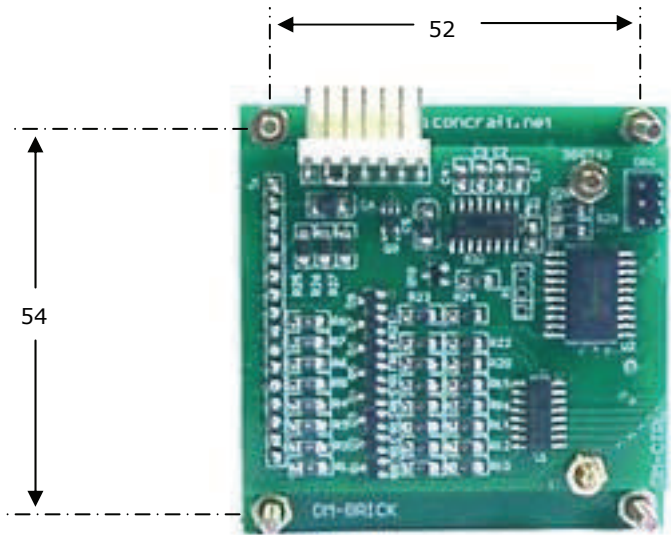
Note : PIN 6 connection is only needed  
When configuring the module with DotMatrix  
Gen Software

**Mechanical Dimension ( mm )**



Front View





Back View  
Mounting Screws Diameter : 3 mm

### Electrical Specification

Power Supply	5VDC +/- 10%
Operating Temperature	0°C to 70°C
Maximum Current Consumption	700 mA