

# Graphic VFD Module

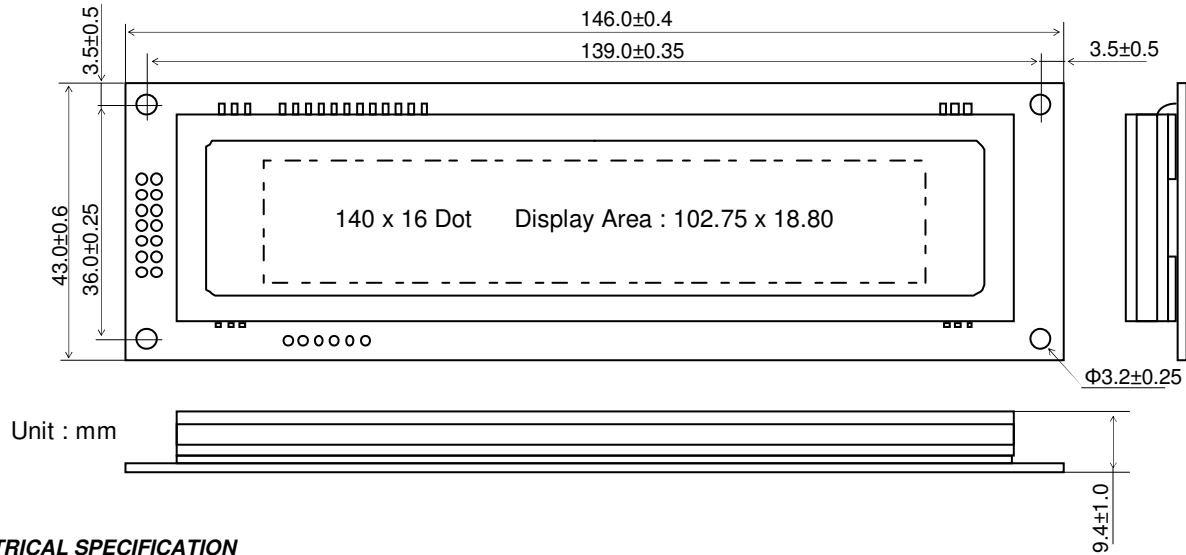
# GU140X16J-7000

Ref: MC-007 Dec.12, 06

- Character Graphic, Transformerless display
- Size compatible with LCD Module (U-Version)
- Single 5V power supply
- High Brightness Blue Green display
- Operating temp -40°C to +85°C
- Proportional and scalable fonts
- Screen saver & window definition function
- 8 level brightness control function
- 8 bit Parallel, RS232C serial Interface

The module includes the Vacuum Fluorescent Display glass, driver and micro-controller Ics with refresh RAM, character generator and interface logic. This module have 8 bit parallel & RS232C serial interface. The module can simultaneously display graphic pattern and / or characters on screen.

**Sample software available**



### ELECTRICAL SPECIFICATION

Parameter	Symbol	Value
Power Supply Voltage	VCC	5.0VDC Typ.
Power Supply Current	ICC	500mADC Typ.
Logic Hi Input (Parallel)	VIH	0.8VCC min. VCC max.
Logic Low Input (Parallel)	VIL	0VDC min. 0.2VDC max.
Logic HI output (Parallel)	VOH	3.5VDC min. 3.8VCC Max.
Logic Low output (Parallel)	VOL	0VDC min. 0.6VDC max.
Logic Hi Input (RS232)	VIH	3.0VDC min. +15VDC max.
Logic Low Input (RS232)	VIL	-15VDC min. 0.5VDC max.
Logic Hi output (RS232)	VOH	4.0VDC min. VCC max.
Logic Low output (RS232)	VOL	0VDC min. 0.5VDC max.

### OPTICAL and ENVIRONMENTAL SPECIFICATIONS

Parameter	Value
PCB Size (X x Y mm)	146.00 x 43.00
Display Area (X x Y mm)	102.75 x 18.80
Dot size / Pitch (X x Y mm)	0.59 x 1.03 / 0.74 x 1.19
Luminance	1,000 cd/m <sup>2</sup> Typ.
Color of Illumination	Blue Green (Filter for more colors)
Operating Temperature	-40°C to +85°C
Operating Humidity	20 to 80 % RH (non condensing)

### SOFTWARE COMMANDS - Popular codes, more included

Command	Code
Write Character to Display	20H~FFH
Cursor Set	1FH 24H xL xH yL yH
Initialize Display	1BH 40H
Specify International Font	1BH 52H n
Vertical / Horizontal Scroll Mode	1FH 02H / 1FH 03H
Screen Saver	1FH 28H 61H 40H p
Display Blink	1FH 28H 61H 11H p t1 t2 c
Bit Image Display Group	1FH 28H 66H 11H xL xH
Font Magnified Display	1FH 28H 67H 40H x y
Brightness Level Setting	1FH 58H n

### COMMON FONT

	2 x H	3 x H	4 x H	5 x H	6 x H	7 x H
x0H	00	01	02	03	04	05
x1H	10	11	12	13	14	15
x2H	20	21	22	23	24	25
x3H	30	31	32	33	34	35
x4H	40	41	42	43	44	45
x5H	50	51	52	53	54	55
x6H	60	61	62	63	64	65
x7H	70	71	72	73	74	75
x8H	80	81	82	83	84	85
x9H	90	91	92	93	94	95
xAH	A0	A1	A2	A3	A4	A5
xBH	B0	B1	B2	B3	B4	B5
xCH	C0	C1	C2	C3	C4	C5
xDH	D0	D1	D2	D3	D4	D5
xEH	E0	E1	E2	E3	E4	E5
xFH	F0	F1	F2	F3	F4	F5

### INTERNATIONAL FONTS

	8 x H	9 x H	A x H	B x H	C x H	D x H	E x H	F x H
x0H	00	01	02	03	04	05	06	07
x1H	10	11	12	13	14	15	16	17
x2H	20	21	22	23	24	25	26	27
x3H	30	31	32	33	34	35	36	37
x4H	40	41	42	43	44	45	46	47
x5H	50	51	52	53	54	55	56	57
x6H	60	61	62	63	64	65	66	67
x7H	70	71	72	73	74	75	76	77
x8H	80	81	82	83	84	85	86	87
x9H	90	91	92	93	94	95	96	97
xAH	A0	A1	A2	A3	A4	A5	A6	A7
xBH	B0	B1	B2	B3	B4	B5	B6	B7
xCH	C0	C1	C2	C3	C4	C5	C6	C7
xDH	D0	D1	D2	D3	D4	D5	D6	D7
xEH	E0	E1	E2	E3	E4	E5	E6	E7
xFH	F0	F1	F2	F3	F4	F5	F6	F7

n=0  
n=19

### RS232C Serial Interface - CN2

Pin	Asyn. Sig
1	VCC
2	SIN
3	GND
4	SBUSY
5	NC
6	/RESET

### Parallel interface- CN1

Pin	Sig	Pin	Sig
1	GND	2	Vcc
3	NC	4	RS
5	/W	6	/RD
7	D0	8	D1
9	D2	10	D3
11	D4	12	D5
13	D6	14	D7

Please inquire for full specification.

\*\* Subject to change without notice \*\*