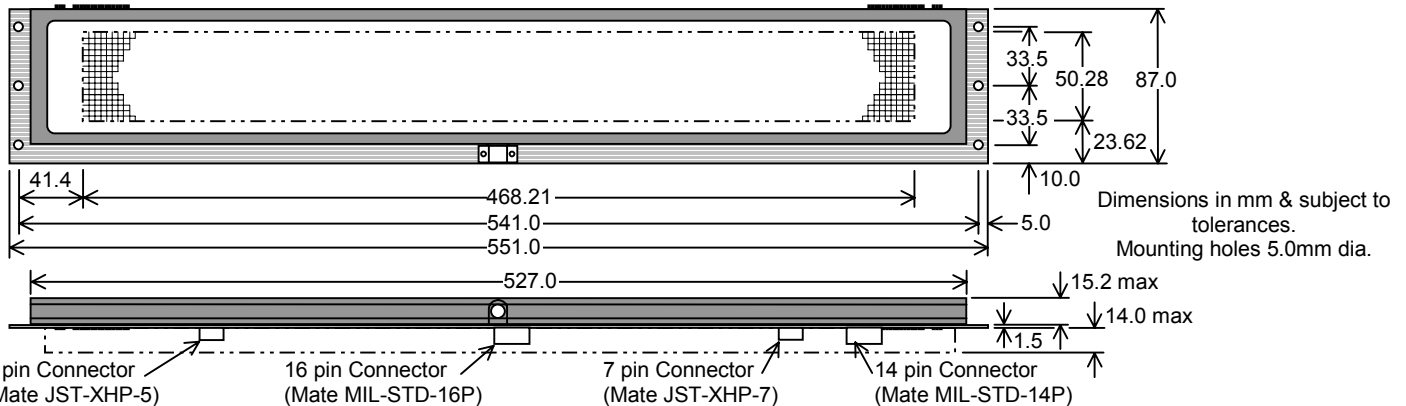


Dot Graphic VFD Module

GU384x32L-3900

- ❑ 384x32 Dot Graphic
- ❑ 5V & 24V Supply
- ❑ High Brightness Blue Green Display
- ❑ Operating Temp -40°C to +70°C
- ❑ 3 ASCII Fonts (6x8, 8x16, 16x16)
- ❑ High Speed 8 Bit Parallel Interface
- ❑ Asynchronous Serial Interface

The module includes the Vacuum Fluorescent Display glass, VF drivers and micro-controller ICs with refresh RAM, character generator and interface logic. The high speed 8 bit parallel interface is 5V TTL/CMOS compatible suitable for connection to a host CPU bus. The asynchronous serial interface accepts baud rates up to 38400, none parity. Three character font tables can be software selected. User defined characters and many control commands are available.



ELECTRICAL SPECIFICATION

Parameter	Symbol	Value	Condition
Power Supply Voltage	VCC1	5.0VDC +/- 5%	GND=0V
Power Supply Current	ICC1	80mADC typ.	Vcc1=5V
Power Supply Voltage	VCC2	24.0VDC +/- 5%	GND=0V
Power Supply Current	ICC2	650mADC typ.	Vcc2=24V
RS232 Serial High Input	VIH	3.0VDC min.	VCC=5V
RS232 Serial Low Input	VIL	-3.0VDC max.	VCC=5V
RS232 Serial High Output	VOH	5.0VDC min.	IOH = -2mA
RS232 Serial Low Output	VOL	-5.0VDC max.	IOL = 4mA
Logic High Input	VIH	0.8VDC min.	VCC=5V
Logic Low Input	VIL	0.2VDC max.	VCC=5V
Logic High Output	VOH	3.5VDC min.	IOH = -10uA
Logic Low Output	VOL	0.6VDC max.	IOL = 4mA

The power on rise time should be less than 100ms. The inrush current at power on can be 2 x ICC.

SOFTWARE COMMANDS

Command Name	Hex
Back Space	08
Horizontal Tab	09
Line Feed	0A
Cursor Home*	0B
Clear Display	0C
Carriage Return	0D
Escape	1B + >
> Specify Download Character	+25
> Download Char. Definition	+26
> Delete Download Character	+3F
> Initialize Display	+40
> Define International Font	+52
> Define Char. Code Type	+74
Overwrite Mode	1F 01
Vertical Scroll Mode	1F 02
Horizontal Scroll Mode	1F 03
Cursor Set	1F 24
RAM Macro Processing	1F 3A
Display Brightness	1F 58
Macro Execution	1F 5E
Enable/Disable Reverse Disply	1F 72
Horizontal Scroll Speed	1F 73
Write Mixture Display Mode	1F 77
Dot Pattern Draw	1F 28 64
User Set Up Mode Start	1F 28 65
I/O Port Control	1F 28 70

See full data sheet for additional commands.

RS232 INTERFACE (CN2)

Pin	Sig
1	RXD
2	DTR
3	DSR
4	TXD
5	NC
6	VCC1 (+5V)
7	GND

PARALLEL INTERFACE (CN5)

Pin	Sig	Pin	Sig
1	D7	9	GND
2	D6	10	WR
3	D5	11	GND
4	D4	12	READY
5	D3	13	GND
6	D2	14	GND
7	D1	15	VCC1
8	D0	16	VCC1

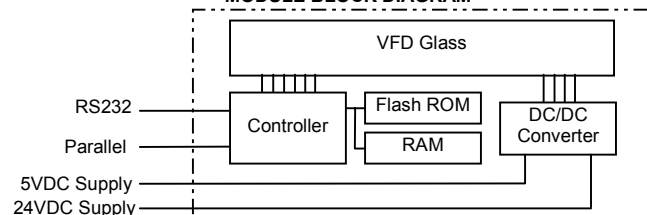
I/O PORT CONNECTOR. (CN1)

Pin	Sig	Pin	Sig
1	Bit 7	8	Bit 0
2	Bit 6	9	Bit 3
3	Bit 5	10	Bit 2
4	Bit 4	11	Bit 1
5	Bit 3	12	Bit 0
6	Bit 2	13	VCC1
7	Bit 1	14	GND

OPTICAL and ENVIRONMENTAL SPECIFICATIONS

Parameter	Value
Display Area (XxY mm)	468.21 x 50.28
Dot Size/Pitch (XxY mm)	0.95 x 1.3 / 1.22 x 1.58
Luminance	700 cd/m ² Typ.
Colour of Illumination	Blue-Green (Filter for colours)
Operating Temperature	-40°C to +70°C
Storage Temperature	-40°C to +85°C
Operating Humidity (non condensing)	20 to 80% RH @ 25°C

MODULE BLOCK DIAGRAM



DISPLAY ADDRESS SELECT

SW1	SW2	SW3	SW4	Address
OFF	OFF	OFF	OFF	00H
ON	OFF	OFF	OFF	01H
OFF	ON	OFF	OFF	02H
ON	ON	OFF	OFF	03H
OFF	OFF	ON	OFF	04H
ON	OFF	ON	OFF	05H
OFF	ON	ON	OFF	06H
ON	ON	ON	OFF	07H
OFF	OFF	OFF	ON	08H
ON	OFF	OFF	ON	09H
OFF	ON	OFF	ON	0AH
ON	ON	OFF	ON	0BH
OFF	OFF	ON	ON	0CH
ON	OFF	ON	ON	0DH
OFF	ON	ON	ON	0EH
ON	ON	ON	ON	0FH

COMMAND MODE SELECT

SW6	Mode
OFF	Normal command
ON	Graphic DMA

OPERATING MODE SELECT

SW7	Mode
OFF	Normal Operation
ON	Memory Re-write

PROTOCOL MODE SELECT

SW8	Mode
OFF	Direct Mode
ON	Packet Mode

BAUD RATE SELECT

SW5	Baud Rate
OFF	38,400
ON	19,200

POWER CONNECTOR (CN6)

Pin	Sig
1	VCC1 (+5V)
2	GND
3	VCC2 (+24V)
4	GND
5	NC

CONTACT

Noritake Sales Office Tel Nos
 Nagoya Japan: +81 (0)52-561-9867
 Canada: +1-416-291-2946
 Chicago USA: +1-847-439-9020
 Munchen (D): +49 (0)89-3214-290
 Itron UK: +44 (0)1493 601144
 Rest Europe: +49 (0)61-0520-9220
www.noritake-itron.com

Subject to change without notice.
 IUK Doc Ref:04285 Iss:1 11Apr03