

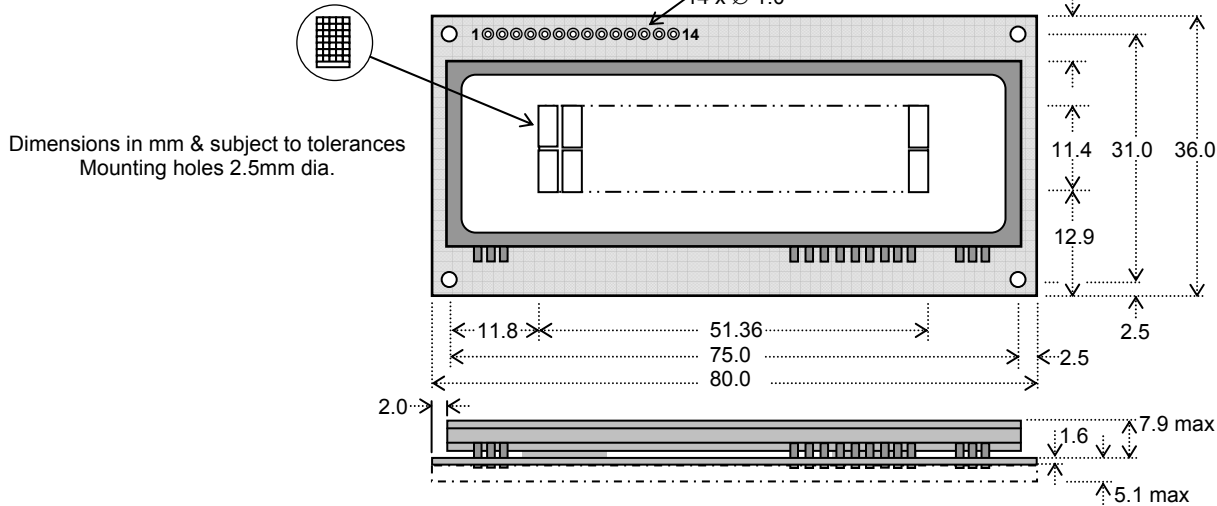
# 5X7 Dot Character VFD Module

CU16025-UW12J

- ❑ 2 X 16 Characters 5mm High
- ❑ LCD Compatible Design
- ❑ Operating Temp -40°C to +85°C
- ❑ Single 5V Supply with Power Save Mode
- ❑ High Brightness Blue Green Display
- ❑ Selectable 4/8 bit M68/i80 Parallel
- ❑ ASCII + Extended Character Font
- ❑ 8 User Definable Character RAM
- ❑ 4 Level Brightness Control Function

The module includes the Vacuum Fluorescent Display glass, driver and micro-controller ICs with refresh RAM, character generator and interface logic.

The high speed 8 bit parallel interface is 5V CMOS compatible suitable for connection to a host CPU bus which can be set to M68 or i80 series interface by a solder link on the module. Brightness control and power down functions are provided. A full data sheet is available.



## ELECTRICAL SPECIFICATION

Parameter	Symbol	Value	Condition
Power Supply Voltage	V <sub>CC</sub>	5.0VDC +/- 5%	GND=0V
Power Supply Current	I <sub>CC</sub>	150mADC typ.	V <sub>CC</sub> =5V
Logic High Input	V <sub>IH</sub>	2.0VDC min.	V <sub>CC</sub> =5V
Logic Low Input	V <sub>IL</sub>	0.8VDC max.	V <sub>CC</sub> =5V
Logic High Output	V <sub>OH</sub>	V <sub>CC</sub> -0.8VDC min.	I <sub>OH</sub> = -4mA
Logic Low Output	V <sub>OL</sub>	0.6VDC max.	I <sub>OL</sub> = 4mA

The power on rise time should be less than 50ms. The inrush current at power on can be 2 x I<sub>CC</sub>. The I<sub>CC</sub> current is 10mA maximum while in power down mode.

## OPTICAL and ENVIRONMENTAL SPECIFICATIONS

Parameter	Value
Character Size/Pitch (XxY mm)	2.275 x 4.759/3.275 x 5.991
Dot Size/Pitch (XxY mm)	0.359 x 0.577/0.479 x 0.697
Luminance	700 cd/m <sup>2</sup> (204 fL) Typ.
Colour of Illumination	Blue-Green (Filter for more colours)
Operating Temperature	-40°C to +85°C
Storage Temperature	-50°C to +85°C
Operating Humidity (non condensing)	20 to 80% RH @ 25°C

## SOFTWARE COMMANDS

Instruction	R/W	RS/D0-D7
Clear Display	L	L 01H
Cursor Return Home	L	L 02H-03H
Entry Mode Set	L	L 04H-07H
Display ON/OFF	L	L 08H-0FH
Cursor/Display Shift	L	L 10H-1FH
Function Set	L	L 20H-3FH
Brightness Set	L	H 00H-03H
Set CG RAM Addr.	L	L 40H-7FH
Set DD RAM Addr.	L	L 80H-E7H
Read BUSY/Addr.	H	L 00H-FFH
Write Data to RAM	L	H 00H-FFH
Read Data from RAM	H	H 00H-FFH

## TIMING PARAMETERS (min)

(E)nable Cycle Time	500ns
(E)nable Pulse Width	230ns
Hold after (E)nable	40ns

## PIN CONNECTIONS (CN3)

Pin	Sig	Pin	Sig
1	GND	2	V <sub>CC</sub>
3	(FNC)	4	RS
5	R/W #	6	E #
7	DB0	8	DB1
9	DB2	10	DB3
11	DB4	12	DB5
13	DB6	14	DB7

## CHARACTER FONT

Hex	00	10	20	30	40	50	60	70	80	90	A0	B0	C0	D0	E0	F0
00																
01		!	1	A	a	9	A	a	.	7	7	4	A	9		
02		"	2	B	b	r	A	E	r	Y	X	B	E			
03		#	3	C	c	s	A	R	J	U	T	E	S	.		
04		\$	4	D	T	d	t	a	#	\	I	T	T	H	.	
05		%	5	E	U	e	u	E	.	.	.	.	.	.	.	.
06		&	6	F	V	f	v	0	+	7	7	7	7	7	7	7
07		'	7	G	W	g	w	8	0	7	7	7	7	7	7	7
08		(	8	H	X	h	x	0	!	Y	T	T	T	T	T	T
09		)	9	I	Y	i	y	0	9	7	7	7	7	7	7	7
0A		*	:	J	Z	j	z	0	4	7	7	7	7	7	7	7
0B		+	;	K	L	k	l	0	5	7	7	7	7	7	7	7
0C		,	<	L	#	1	1	1	2	7	7	7	7	7	7	7
0D		-	=	M	I	m	>	#	4	7	7	7	7	7	7	7
0E		.	>	N	^	n	+	7	7	7	7	7	7	7	7	7
0F		/	?	O	_	o	+	7	7	7	7	7	7	7	7	7

## JUMPER LINKS

### # Interface M68/i80

When jumper link JP2 is soldered, these inputs change to i80 series CPU control lines.

Pin 5 = /WR Pin 6 = /RD

### Pin 3 (Fnc) Input

This is normally open circuit. If pads JP1.1 and JP1.2 are linked. Pin 3 = /Reset.

## 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](http://www.noritake-itron.com)

Subject to change without notice.  
 IUK Doc Ref: 43839 Iss:1 26Jan09

NORITAKE ITRON VFD MODULES

2x16, 5mm Dot Character