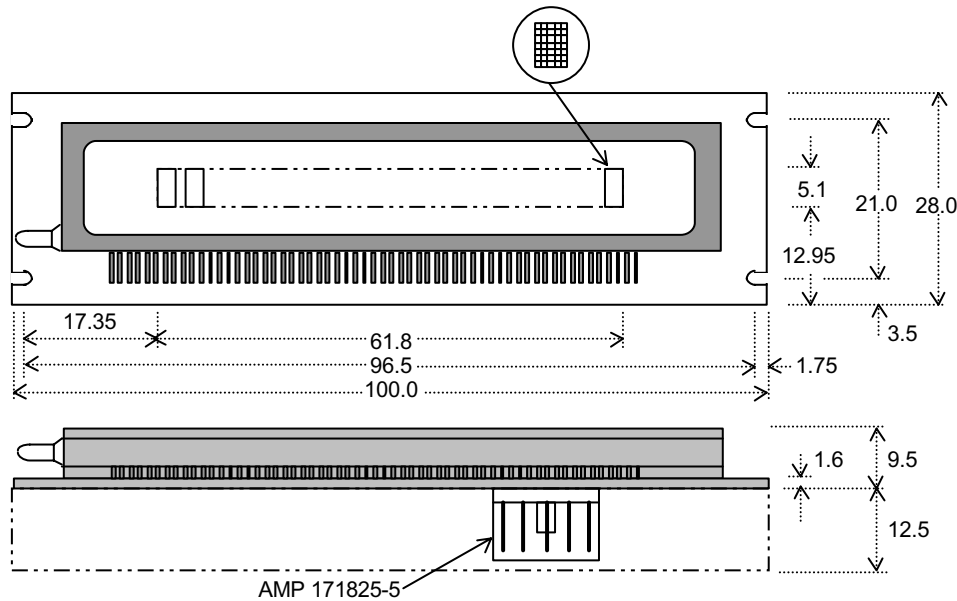


# 5X7 Dot Character VFD Module

# CU165ECPB-T2J

- ❑ 1 X 16 Characters 5mm High
- ❑ Operating Temp -10°C to +65°C
- ❑ Single 5V Supply
- ❑ High Brightness Blue Green Display
- ❑ ASCII + Extended Character Font
- ❑ 16 User Definable Character RAM

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



Dimensions in mm & subject to tolerances. Mounting holes 3.5mm dia.

## 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>	250mADC 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
+ve Threshold Voltage	V <sub>T+</sub>	2.0VDC Typ.	V <sub>CC</sub> =5V
-ve Threshold Voltage	V <sub>T-</sub>	2.0VDC Typ.	V <sub>CC</sub> =5V

The power on rise time should be less than 50ms. The inrush current at power on can be 2 x I<sub>CC</sub>. Optical filters can provide violet, red, yellow, blue and green output.

## OPTICAL and ENVIRONMENTAL SPECIFICATIONS

Parameter	Value
Character Size/Pitch (XxY mm)	2.55 x 5.1/3.95
Dot Size/Pitch (XxY mm)	0.43 x 0.6/0.53 x 0.75
Luminance	700 cd/m <sup>2</sup> (200 fL) Typ.
Colour of Illumination	Blue-Green (Filter for more colours)
Operating Temperature	-10°C to +65°C
Storage Temperature	-40°C to +85°C
Operating Humidity (non condensing)	20 to 80% RH @ 25°C

## SOFTWARE COMMANDS

Instruction	Hex
Set Display Length (from 9 to 16 characters)	00H-07H
Set Brightness Value	08H-0FH
Set Digit Scan Time (160uS or 320uS)	F6H-F7H
Set Digit Pointer	E0H-EFH
Auto Increment Mode On/Off	F4H-F5H
Set Display. All off; On; All On.	F0H-F3H
Send User Definable Fonts	FCH-FFH

## TIMING PARAMETERS (min)

SCK Cycle Time	500ns
SCK Pulse Width	230ns
Delay After 8 <sup>th</sup> bit, /CS=L'	130ns
Set Up To SCK, /CS=L'	0ns

## CHARACTER FONT

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

## PIN CONNECTIONS

Pin	Sig
1	V <sub>CC</sub>
2	GND
3	/CS
4	CLK
5	DATA

## CONTACT

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Subject to change without notice.  
 IUK Doc Ref: 03352 Iss.1 10 Apr 01