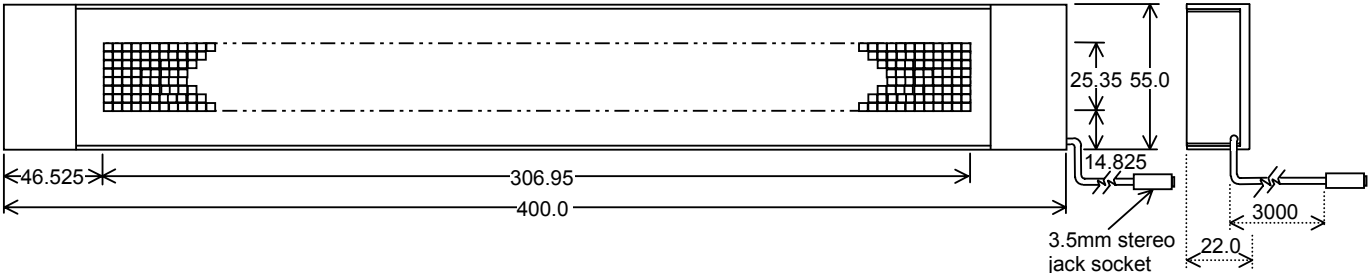


# Dot Graphic VFD Module

# EGU128X8T-K612C5

- ❑ 128 x 8 High Brightness Dot Graphic Display
- ❑ Single 12V DC Supply
- ❑ Large 5x7 ASCII & European Font
- ❑ RS232 Asynchronous Serial Interface
- ❑ 31 Selectable Multi Drop Addresses
- ❑ Transformerless PSU (patent pending)
- ❑ Low Profile Construction

The module includes the VFD glass, VF drivers and microcontroller with refresh RAM, character generation, interface logic and patented transformerless DC/DC converter. The RS232 serial interface accepts 9600 or 19200 baud rates with optional parity bit. The module features a low profile design with numerous custom options available including special fonts and commands. Modules can be connected to a multi drop address system.



Dimensions in mm & subject to tolerances.

## ELECTRICAL SPECIFICATION

Parameter	Symbol	Value	Condition
Supply Voltage	VDD	12.0VDC +/- 10%	GND=0V
Supply Current	IDD	500 mA typ.	VDD=12V
RS232 Input	VsIL / VsiH	-24V max / +24V max	VDD=12V
RS232 Output	VsOL / VsoH	-5VDC min / +5VDC min	VDD=12V

## OPTICAL & ENVIRONMENTAL SPECIFICATION

Parameter	Value
Display Area (X x Ymm)	306.95 x 25.35
Dot Size/Pitch (XxY mm)	2.15 x 2.95 / 2.4 x 3.2
Luminance	1000 cd/m <sup>2</sup> Typ.
Colour of Illumination	Blue-Green (505nm)
Operating Temperature	-40°C to +85°C
Storage Temperature	-40°C to +85°C
Operating Humidity	20 to 85% RH @ 25°C

Optical filters can provide violet, red, yellow, blue & green output.

## SOFTWARE COMMANDS

Hex	Command
10	Software Reset to power on state
11	Write Mode toggles overwrite / scroll
12	Write Direction toggles increment / decrement
13	Display On/Off. Data is retained
14	Display Invert. Toggle negative image
15 + xx	Absolute Column Set from 00H - FFH
16 + xx	Relative Column Set by 00H - FFH
17 + len + data	Graphic Data Write 1 bytes per column, D7 top
18	Clear Character Buffer with 21 ASCII spaces
19 + data	Write to Character Buffer for display effect
1A + effect	Fade, wipe, scroll, dissolve & character delay.
1C + macro + len + data	Store Macro E0H - FFH in EEPROM
1D + delay	Halt process for up to 3 seconds
1E + 1E + 1E + FE	Clear Macros from EEPROM
1E + 1E + 1E + FF	Stop Display and clear receive buffer
1E + 1E + 1E + adr	Address Select 00H - 1FH for active module
1F	Loop receive buffer
20 - DF	Character Write ASCII font.
E0 - FF	Run Macro - execute user defined macro
60 + dh + dl	Send Hexadecimal code instead of binary

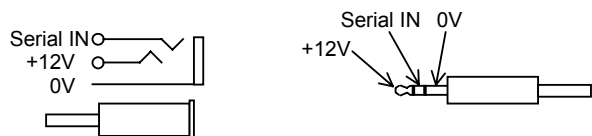
The user can send non printable command codes 10H-1FH as hexadecimal by prefixing the code using character 60H. Example: `15`3F = Position column 64. When 1FH is sent, the commands/data in the communication buffer (max 192 bytes) are executed until 'Stop Display' is issued. Example: 10H --- data --- 1FH. Macro E0 is run at power on unless cleared. Software and font set are copyright Noritake Itron Corporation 2002

## CHARACTER SET - 5X7 Font

	00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F
20		!	"	#	\$	%	&	'	(	)	*	+	,	-	.	/
30	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
40	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	
50	p	q	r	s	t	u	v	w	x	y	z	[	\	]	~	
60	`	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
70	p	q	r	s	t	u	v	w	x	y	z	{		}	~	
80	€	°	∂	∫	∞	∑	∏	∏	∏	∏	∏	∏	∏	∏	∏	∏
90	∑	∏	∏	∏	∏	∏	∏	∏	∏	∏	∏	∏	∏	∏	∏	∏
A0	À	Á	Â	Ã	Ä	Å	Æ	Ç	È	É	Ê	Ë	Ì	Í	Î	Ï
B0	Ð	Ñ	Ò	Ó	Ô	Õ	Ö	×	Ø	Ù	Ú	Û	Ü	Ý	Þ	
C0	à	á	â	ã	ä	å	æ	ç	è	é	ê	ë	ì	í	î	ï
D0	ð	ñ	ò	ó	ô	õ	ö	÷	ø	ù	ú	û	ü	ý	þ	ÿ

Character 60H is used as a hexadecimal prefix, but can be displayed with a repeat send. Column position X = 00H - 7FH. Data is shown in hexadecimal and sent in binary. e.g. FFH = 11111111 Bin Address 'adr' = 00H - 1FH. Setting 'adr' to 00H activates all modules. The communication settings and address can be set using the three switches on the rear of the module. Default communication is Addr 00 - 9600, n, 8, 1 STD. Choose between 'STD' (standard) and 'WEB' modes. In 'WEB' mode 20H and all codes below 10H are ignored. To send a SPACE, 5FH can be used. All codes are accepted when sent using hexadecimal. Select 'WEB' mode when using the display with the Noritake Message Creator software.

## JACK SOCKET CONNECTIONS



## CONTACT

Detailed specification, software commands and interface timing are available on request. Subject to change without notice. IUK Doc. No. 04045 Iss.2 8 Jan 03

**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-iron.com](http://www.noritake-iron.com)