

# 112x16 Serial VFD with Graphics Capability (#27970)

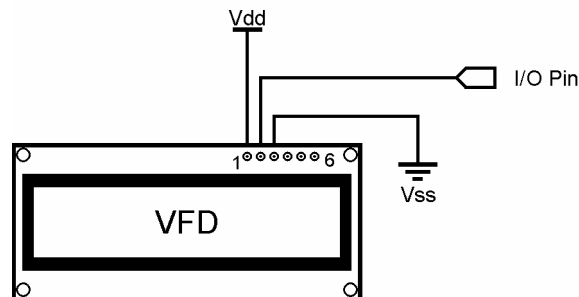
## General Description

The Noritake GU112X16G-7003 Vacuum Fluorescent Display provides a 2X16 character text mode comparable to that of an LCD while providing better viewing angle, higher brightness and wider temperature range. This VFD also provides 112x16 pixel graphics capability and screen saver functions.

## Features

- 16 Custom Characters
- 11 Built-in International Fonts
- Font Magnification
- 4 User-Definable Windows
- Horizontal and Vertical Scrolling
- 8 Levels of Brightness Control
- Simple Serial Interface @ 38.4Kbps
- Compatible Parallax BASIC Stamp 2, SX and Propeller microcontrollers

## Connection Diagram



## Resources and Downloads

Check out the 112x16 Serial VFD product page for additional example programs, the manufacturer datasheet and more:

[http://www.parallax.com/detail.asp?product\\_id=27970](http://www.parallax.com/detail.asp?product_id=27970)

## Precautions

- To avoid damage to the module always verify your connections before powering up the VFD.
- The VFD requires ~260mA to operate. Be sure your Power Supply is adequate for everything connected to it.

## BASIC Stamp<sup>®</sup> 2 Program

This program gives a simple demonstration of controlling the GU112X16G-7003 from a BASIC Stamp 2.

```
' =====
' File..... VFD-Demo-01.bs2
' Purpose... Demo Code For GU112X16G-7003
' Author.... Parallax, Inc.
' E-mail.... support@parallax.com
' Updated... 05-14-2006
'
'   {$STAMP BS2}
'   {$PBASIC 2.5}
'
' -----[ Program Description ]-----
'
' *** CHECK YOUR WIRING BEFORE POWERING UP THE VFD ***
' This program demonstrates using the GU112X16G-7003 VFD from Noritake.
'
' -----[ I/O Definitions ]-----
VFD          PIN      15          ' VFD Serial I/O Pin
'
' -----[ Constants ]-----
Baud         CON      6          ' 38.4 Kbps (BS2)
'
' -----[ Variables ]-----
index        VAR      Byte       ' Main Counter Variable
'
' -----[ Initialization ]-----
HIGH VFD          ' Initialize I/O Pin
PAUSE 200         ' Allow Time To Settle
SEROUT VFD, Baud, [$1B, $40] ' Initialize Display
PAUSE 200         ' Allow Time To Settle
'
' -----[ Program Code ]-----
Main:
' Write Screen Mode Select: 0=Display Screen, 1=All Screen
SEROUT VFD, Baud, [$1F, $28, $77, $10, $01]
SEROUT VFD, Baud, [$0C]          ' Clear Display
FOR index = 0 TO 98 STEP 7      ' Move Forward 1 Position
  SEROUT VFD, Baud, [$0C, $1F, $24, index, 0, 0, 0, DEC2 index]
  PAUSE 150
NEXT
FOR index = 98 TO 0 STEP 7     ' Move Backward 1 Position
  SEROUT VFD, Baud, [$0C, $1F, $24, index, 0, 1, 0, DEC2 index]
```

```

    PAUSE 150
NEXT
SEROUT VFD, Baud, [$0C]           ' Clear Display
FOR index = 0 TO 98               ' Move Forward 1 Pixel
    SEROUT VFD, Baud, [$0B, $1F, $24, index, 0, 0, 0, DEC2 index]
    PAUSE 20
NEXT
SEROUT VFD, Baud, [$0C]
FOR index = 98 TO 0              ' Move Backward 1 Pixel
    SEROUT VFD, Baud, [$0B, $1F, $24, index, 0, 1, 0, DEC2 index]
    PAUSE 20
NEXT
SEROUT VFD, Baud, [$0C, " Parallax, Inc.", $0A, $0D, "Microcontrollers"]
PAUSE 1000                       ' Wait 1 Second
SEROUT VFD, Baud, [$1F, $28, $61, $11, $02, $20, $20, $06]
PAUSE 6000                       ' Wait For Command To Complete
SEROUT VFD, Baud, [$0C]         ' Clear Display
FOR index = 1 TO 8
    SEROUT VFD, Baud, [$0B, "Brightness Level", $0A, $0D,
        DEC index, $1F, $58, index] ' Set Brightness Level
    PAUSE 500
NEXT
PAUSE 2000                       ' Wait 2 Seconds
SEROUT VFD, Baud, [$0C, $1F, $28, $67, $40, $02, $02, "BIG FONT!!!"]
PAUSE 2000                       ' Wait 2 Seconds
SEROUT VFD, Baud, [$1F, $28, $61, $10, $04, $00, $50, $00, $04]
PAUSE 2000                       ' Wait 2 Seconds
SEROUT VFD, Baud, [$0C, $1F, $28, $67, $40, $01, $01, "Normal..."]
PAUSE 5000
STOP

```