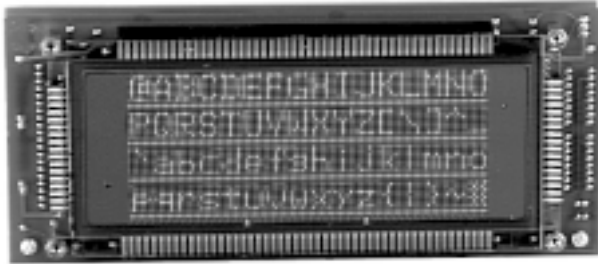# APD-064M033

Vishay Dale

Plasma Panel Display Modules
64 Character Display with Drive Electronics and Controller, Serial and Parallel Versions

The APD-064M033 display module displays up to 64 alphanumeric 5 x 7 dot matrix characters arranged in 4 lines of 16 characters each. The module includes drive electronics, a controller consisting of refresh memory, character generator and control logic with ASCII input. Interfacing is very simple and requires minimum handshake to enable the module to serve as a cost effective direct readout device for many applications including POS terminals, industrial controls, computer peripherals, measurement instruments and office machines. Serial and parallel versions are available as well as single + 5 VDC power input.

GENERAL DESCRIPTION

The APD-064M033 plasma display module consists of a multiplexed DC plasma display, driver circuitry and a microprocessor-based controller board. The interface is a basic 8 bit parallel ASCII interface with handshaking and some dedicated control lines or a serial data interface which requires no handshaking. The EPROM based character generator is programmed with an ASCII character set but is easily configured for any character set. Vishay Dale's patented open construction display technology assures a stable, flicker free screen.

Parallel ASCII and cursor data are presented to the unit in negative logic convention and a separate strobe line for each determines which is entered. A single busy signal indicates to the host system when the display is busy. The logic input is one 74LS type input with a 4.75 kilohm to + 5 VDC and a 1000pF capacitor to ground. The output is driven from a 74LS06 open collector gate and is not internally pulled up.

The serial interface is RS-232 compatible. Baud rate is 9600(other baud rates can be supplied) and the data byte format is 8 data bits, 1 stop bit and no parity. The serial interface supports Reset, Backspace, Line Feed and Carriage Return in addition to Cursor Position selection.

FEATURES
- 64 (4 x 16) alpha numeric characters (5 x 7 dot matrix).
- Only + 5 and + 185 VDC required (+ 5 volt only available).
- ASCII character set (optional character sets available).
- Parallel or serial interface.
- Wide viewing angle (150°).
- Rugged design/slim profile.
- Flicker free refresh, high speed data input.
- High brightness.
- Compatible with Babcock DP-0416-C1.

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature: 0°C to + 55°C.

Storage Temperature: - 55°C to + 85°C.

Relative Humidity: 10-90% R.H. non-condensing.

Mechanical Shock: 50G 1/2 sine wave, 11 msec duration, 5 shocks in each of 6 directions.

Vibration: 0.018" [0.457mm] displacement amplitude from 10 to 50Hz, 2G acceleration from 50 to 2000Hz logarithmic sweep rate, along each side of the 3 major axes.

OPTICAL SPECIFICATIONS

Viewing Area: 4.76" [120.90mm] W x 2.0" [50.80mm] H.

Number of Characters: 64.

Character Size: 0.330" [8.38mm] W x .230" [5.84mm] H.

Luminance: 80 foot lamberts.

Color: Neon orange.

Viewing Angle: 150° cone.

STANDARD ELECTRICAL SPECIFICATIONS

|	MIN.	TYP.	MAX.	UNITS
Logic Supply Voltage	+ 4.75	+ 5.0	+ 5.25	V
Logic Supply Current	—	—	750	mA
Panel Supply Voltage	+ 175	+ 185	+ 195	V
Panel Supply Current	—	—	30	mA
(+ 5 VDC only option)				
Supply Voltage	+ 4.75	+ 5.0	+ 5.25	V
Supply Current	—	—	1.0	A

INTERFACE SIGNAL DESCRIPTION

DB0-DB7 (Data bus) - Data bus to enter character and cursor data.

CUR-LD (Cursor Load) - The cursor is moved to the address given by DB0-DB7 where:
00H = home position.
0FH = last character position, 1st line.
3FH = last character position, 4th line.

WR (Write) - The ASCII character, as defined by the code given by DB0-DB7, is displayed at the selected address. The display auto-increments from a given address.

BUSY (Busy Signal) - I/O is inhibited when busy is high.

DIMENSIONS in inches [millimeters]
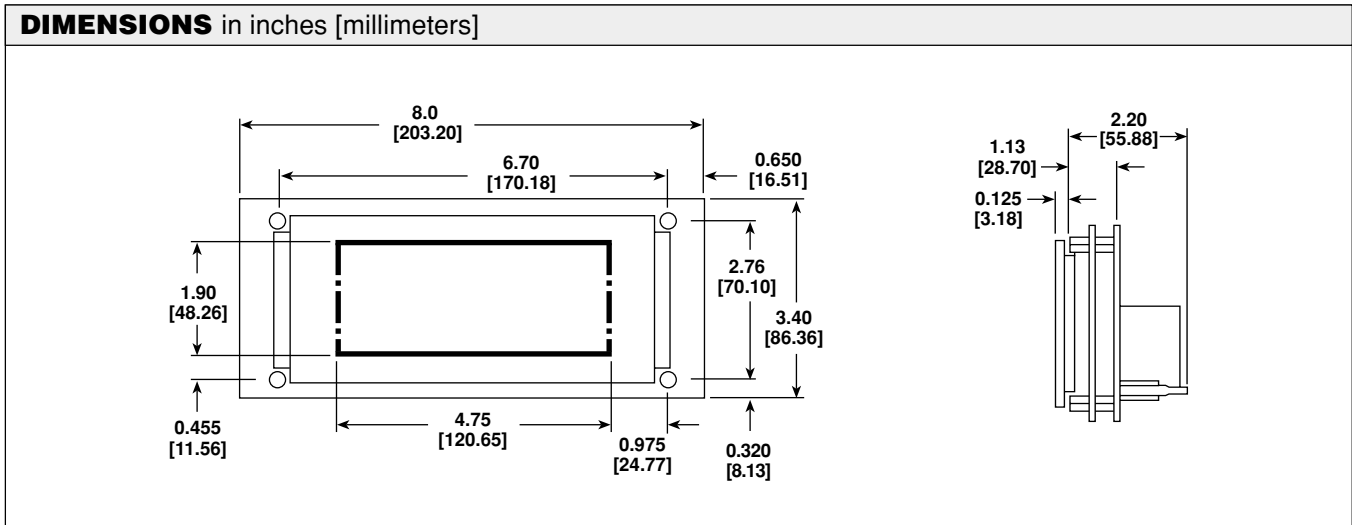
PIN DESCRIPTION

CONNECTOR	PIN	SIGNAL
J1	1, 3, 5, 7, 9, 11, 13, 15	DB0-DB7
	2	BUSY
	4	SERIAL DATA
	6, 8, 10, 12	GROUND (Data)
	14	WR
	16	CUR-LD
J2	1	+ 185 VDC
	2	GROUND (H)
	3	GROUND (L)
	4	+ 5 VDC
TB1	1	+ 185 VDC
	2	GROUND (L)
	3	SERIAL DATA
	4	GROUND (Data)
	5	+ 5 VDC
	6	GROUND (H)

WARNING: Wrong connections may cause permanent damage to the display and host system. When using APD-064M033-1 (+ 5 VDC only version), no connections must be made to pins 1, 2 of J2 and 1, 6 of TB1.

PARALLEL INPUT FUNCTION TABLE

CUR-LD	WR	FUNCTION
L	H	Select a cursor address with DB0-DB7
H	L	DB0-DB7 ASCII character loaded at cursor address, increment address

SERIAL DATA CONTROL CODES

Reset	01H
Backspace	08H
Line Feed	0AH
Carriage Return	0DH
Load Cursor Position	1BH, XX (XX = cursor address)

ORDERING INFORMATION

DESCRIPTION	PART NUMBER

PARALLEL VERSION, + 5, + 185 VDC INPUT

Display, Drive Electronics and Controller APD-064M033

SERIAL VERSION, + 5 VDC INPUT, 9600 BAUD

Display, Drive Electronics and Controller APD-064M033-1

J1 Data Connector Kit 280105-02

J2 Power Connector Kit 280108-06

Non-Glare Filter (amber circular polarized) - other filters available, contact factory 280109-15