

# Digitally Programmable Delay Units

**SERIES: PDU-1316  
(4-Bit) TTL Interfaced**

**data delay devices, inc.**



## Features:

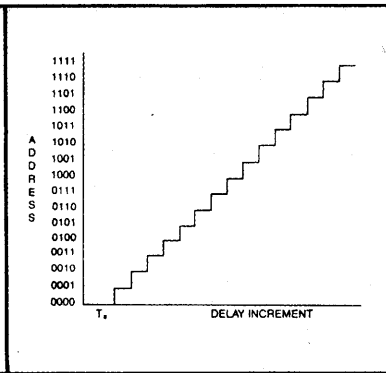
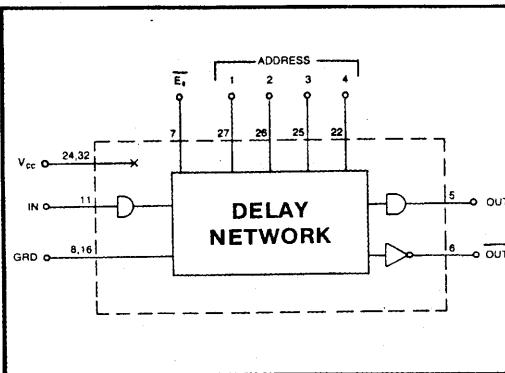
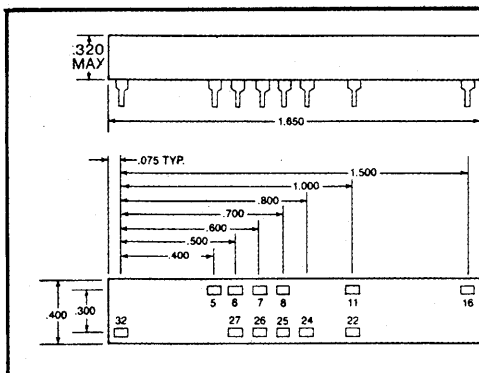
- Input & output TTL buffered
- 4-BIT TTL programmable delay line
- Two (2) separate outputs; inverting & non-inverting
- Completely interfaced
- Compact & low profile

## Specifications:

- Input signal requirement: TTL logic.
- Output fan-out: TTL Schottky loads.
- Delay variation: Monotonic in one direction.
- Programmed delay tolerance:  $\pm 5\%$  or 1 ns whichever is greater.
- Inherent delay ( $T_{D0}$ ):
  - 19 ns  $\pm$  1 ns on pin 5 } for PDU-1316-1 thru -10
  - 15 ns  $\pm$  1 ns on pin 6 }
 greater for rest of Part Numbers.
- Propagation delay:
  - Address to output ( $T_{SUA}$ ) = 12 ns typ.
  - Enable to output ( $T_{SUE}$ ) = 12 ns typ.
- Power dissipation: 740 mw max.
- Supply voltage: 5 Vdc  $\pm$  5%.
- Operating temperature: 0-70°C.
- Temperature coefficient: 100 PPM/°C.

## Test Conditions:

- Input pulse-width:  $\geq 150\%$  of Max. delay.
- Input pulse spacing:  $\geq 3$  times of Max. delay.
- Input pulse voltage: TTL logic.
- Measurements taken @  $T_a = 25^\circ\text{C}$ ;  $V_{CC} = 5\text{V}$ .



TRUTH TABLE

Enable (E0)	Address				Delay Out
	4	3	2	1	
0	0	0	0	0	$T_0$
0	0	0	0	1	$T_1$
0	0	0	1	0	$T_2$
0	0	0	1	1	$T_3$
0	0	1	0	0	$T_4$
0	0	1	0	1	$T_5$
0	0	1	1	0	$T_6$
0	0	1	1	1	$T_7$
0	1	0	0	0	$T_8$
0	1	0	0	1	$T_9$
0	1	0	1	0	$T_{10}$
0	1	0	1	1	$T_{11}$
0	1	1	0	0	$T_{12}$
0	1	1	0	1	$T_{13}$
0	1	1	1	0	$T_{14}$
0	1	1	1	1	$T_{15}$
1	$\emptyset$	$\emptyset$	$\emptyset$	$\emptyset$	0

Part No.	Incremental Delay Per Step (ns)	Total Programmed Delay (ns)
PDU-1316-5	.5 $\pm$ .3	7.5
PDU-1316-1	1 $\pm$ .5	15.0
PDU-1316-2	2 $\pm$ .5	30.0
PDU-1316-3	3 $\pm$ 1.0	45.0
PDU-1316-4	4 $\pm$ 1.0	60.0
PDU-1316-5	5 $\pm$ 1.0	75.0
PDU-1316-6	6 $\pm$ 1.0	90.0
PDU-1316-8	8 $\pm$ 1.0	120.0
PDU-1316-10	10 $\pm$ 1.5	150.0
PDU-1316-12	12 $\pm$ 1.5	180.0
PDU-1316-15	15 $\pm$ 1.5	225.0
PDU-1316-20	20 $\pm$ 2.0	300.0
PDU-1316-25	25 $\pm$ 2.5	375.0
PDU-1316-30	30 $\pm$ 3.0	450.0
PDU-1316-35	35 $\pm$ 3.5	525.0
PDU-1316-40	40 $\pm$ 4.0	600.0
PDU-1316-45	45 $\pm$ 4.5	675.0
PDU-1316-50	50 $\pm$ 5.0	750.0
PDU-1316-60	60 $\pm$ 6.0	900.0
PDU-1316-80	80 $\pm$ 8.0	1,200.0
PDU-1316-100	100 $\pm$ 10.0	1,500.0

0 = Logic 0    1 = Logic 1     $\emptyset$  = Don't care.  
 $T_0$  = Reference or inherent delay of unit  
 $T_1 \rightarrow T_{15}$  = Multiplier of incremental delay.