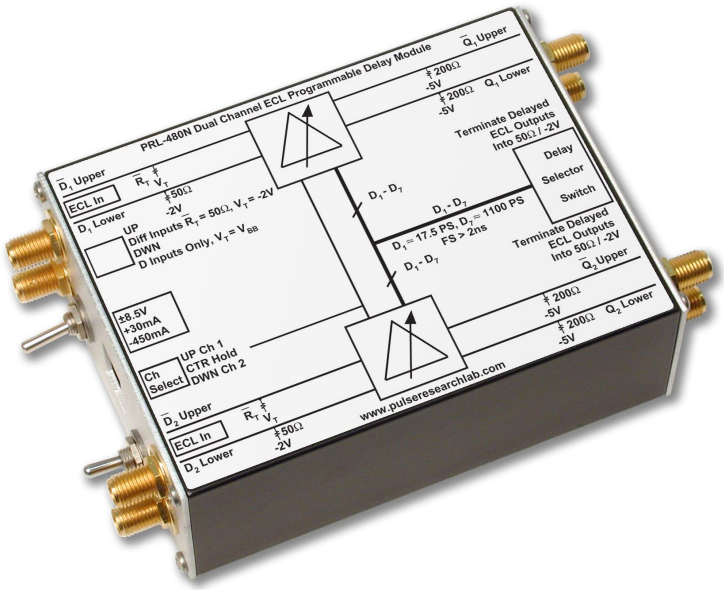
PRL-480N DUAL CHANNEL PROGRAMMABLE NECL DELAY MODULE

APPLICATIONS

- High Speed Clock De-skewing
- Critical Timing Adjustment
- Sub-nanosecond Pulse Width generation
- An Essential Lab Tool for Working with GHz NECL Circuits



FEATURES

- 1.2 GHz Maximum Clock Rate
- 2.2ns Maximum Delay
- 17.5ps minimum program resolution
- Single-ended or Differential Inputs
- Internal 50Ω/-2V Input Terminations also accept Sine wave or AC coupled PECL Signals
- Complementary NECL Outputs drive 50Ω/-2V
- DC Coupled I/O's
- SMA I/O Connectors
- Ready-to-Use 1.3 x 2.9 x 3.9-in. Module including a ±8.5V/±1.4 A AC/DC Adapter

DESCRIPTION

The PRL-480N is a dual channel programmable ECL Delay module. It is intended for clock de-skewing and critical timing adjustment in high speed logic circuit testing, and it has a maximum clock frequency of 1.2GHz. The outputs of the two channels can be connected to an AND gate, such as the PRL-435, for generating sub-nanosecond pulse width signals.

The delay of each channel can be individually programmed using a seven-position DIP-switch and a channel selector switch. When the channel selector switch is up, channel I is in the pass-through mode, and channel II is latched. Any change in the DIP switch setting causes a delay change in the channel I outputs only. Similarly, when the switch is down, channel II only is in pass-through mode. When the switch is in the center position, or HOLD mode, both channels are latched.

The input of each channel can be driven either differentially or single ended. A switch selects either single-ended or differential inputs, as shown in Fig. 1. In the differential input mode, both inputs D and $\overline{D}$ are terminated internally into 50 Ω/-2 V, and, therefore, either one or both inputs can accept AC coupled signals as well. In the single input mode, signals should be connected to the D inputs only. Inputs $\overline{D}$ are switched internally to V_{BB}, nominally -1.3 V, and termination resistors $\overline{R}_T$'s for the $\overline{D}$ input channels are changed to 62 Ω. Complementary outputs of the PRL-480 are designed for driving 50 Ω loads terminated into –2 V, or AC coupled 50 Ω loads.

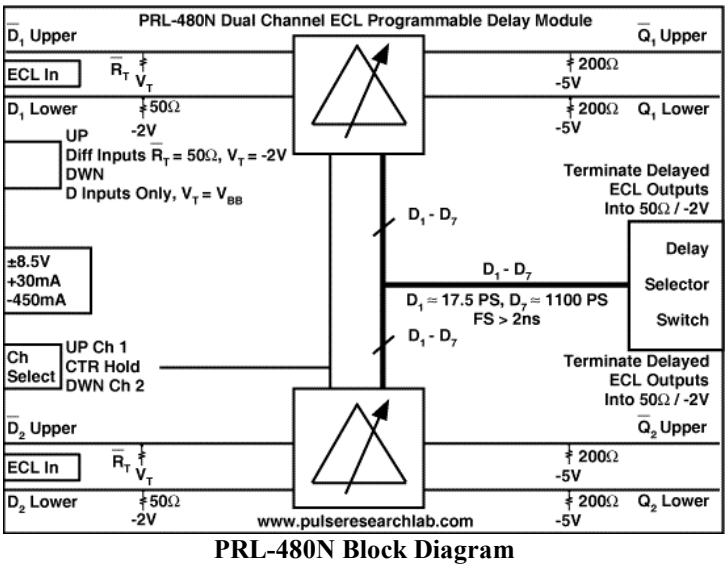
The PRL-480N is housed in a 1.3 x 2.9 x 3.9-in. extruded aluminum enclosure and is supplied with a ±8.5 V/±1.4 A AC/DC Adapter.

PULSE RESEARCH·LAB

1234 Francisco Street, Torrance, CA 90502
Tel: 310-515-5330 Fax: 310-515-0068
Email: sales@pulseresearchlab.com
www.pulseresearchlab.com

SPECIFICATIONS* (0° C ≤ T_A ≤ 35°C)

SYMBOL	PARAMETER	Min	Typ	Max	UNIT	Comments
R_{in}	Input Resistance	49.5	50	50.5	Ω	
V_{TT}	Input Termination Voltage (fixed)	-2.2	-2	-1.8	V	D Inputs
V_T	Input Termination Voltage (variable)	-1.17/-2.2	-1.3/-2	-1.43/-1.8	V	$\overline{D}$ Inputs
$+I_{CC}$	Positive DC Input Current		25	30	mA	
$-I_{EE}$	Negative DC Input Current		-420	-450	mA	
V_{DC}	DC Input Voltage	±7.5V	±8.5V	±12V	V	
V_{AC}	AC/DC Adaptor Input Voltage	103	115	127	V	
t_{PLH}	Insertion propagation Delay to output ↑		2500		ps	D1-D7 set to 0
t_{PHL}	Insertion propagation Delay to output ↓		2500		ps	D1-D7 set to 0
Δt	Step Delay D1 High D2 High D3 High D4 High D5 High D6 High D7 High		 17.5 35 70 140 280 560 1120		ps	
t_r/t_f	Rise/Fall Times (20%-80%)		700	900	ps	Note (1)
t_{SKEW}	Skew between Q&$\overline{Q}$ Outputs		40	80	ps	
t_{SKEW}	Skew between Q1& Q2 Outputs		40	80	ps	D1-D7 set to 0
f_{MAX}	Max clock frequency	1	1.2		GHz	Note (2)
V_{CMR}	Common Mode Range	-2.7		-0.4	V	
	Size	1.3 x 2.9 x 3.9			in.	
	Weight	8			Oz	



PRL-480N Block Diagram

*All measurements are made with outputs terminated into 50 Ω/-2 V, using the PRL-550NQ4X, four-channel NECL Terminators, connected to a 50 Ω input sampling oscilloscope.

Notes:

(1). The output rise and fall times are measured with both the Q and $\overline{Q}$ outputs terminated into 50 Ω/-2 V. An unused complementary output should be either terminated into 50 Ω/-2 V or AC coupled into a 50 Ω load. Otherwise, output waveform distortion and rise time degradation will occur. Use the PRL-550ND4X or PRL-550NQ4X, two or four channel ECL Terminators, respectively, for the 50 Ω/-2 V termination and for connection of ECL signals to 50 Ω input oscilloscopes when DC level information is required. Otherwise, use the PRL-ACT-50, dual AC coupled 50 Ω Termination module, for the unused outputs and the PRL-SC-104 DC Block for connection to a 50 Ω input oscilloscope. The PRL-ACX-12dB, AC coupled attenuator, can also be used for either terminating unused output or connection to a 50 Ω input oscilloscope.

(2). f_{MAX} is measured by AC coupling a sine wave to the D input using the differential input mode (switch up). The differential outputs are first divided by four, using the PRL-255N, and then measured using the PRL-550NQ4X four channel NECL Terminator, connected to a sampling 'scope.

PULSE RESEARCH LAB

1234 Francisco Street, Torrance, CA 90502
Tel: 310-515-5330 Fax: 310-515-0068
Email: sales@pulseresearchlab.com
www.pulseresearchlab.com