

PRL-420ND DUAL CHANNEL TTL TO NECL LOGIC LEVEL TRANSLATOR

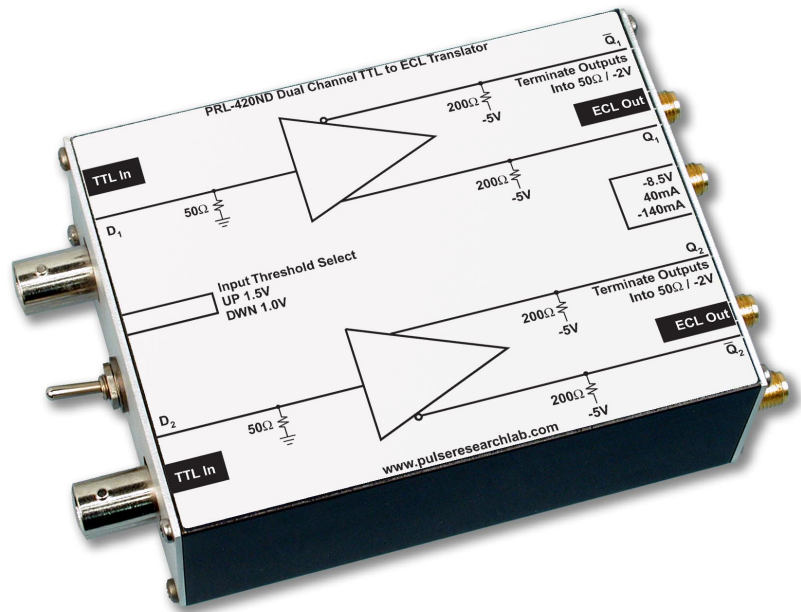
PRL-420PD DUAL CHANNEL TTL TO PECL LOGIC LEVEL TRANSLATOR

APPLICATIONS

- Converting TTL/CMOS signals to Differential NECL/PECL Signals
- High Speed Digital Communications system testing
- High Speed SONET Clock Level Translation
- Converting TTL/CMOS Clocks to NECL/PECL Clocks for connection to Transient Recorders

FEATURES

- $f_{\max} > 300$ MHz
- 750 ps/1100 ps t_r for PRL-420ND/420PD
- 50 Ω TTL/CMOS Input
- 1.5V or 1V Selectable Input Threshold
- Complementary NECL/PECL Outputs
- BNC Input/SMA Output Connectors
- DC Coupled I/O's
- Self-contained 1.3 x 2.9 x 3.9-in. units including AC/DC Adapters



DESCRIPTION

The PRL-420ND and PRL-420PD are, respectively, dual channel TTL/CMOS to NECL and TTL/CMOS to PECL Logic Level Translators. Each unit has a switch-selectable 1.5V or 1V input threshold voltage. The PRL-420ND has a pair of complementary NECL outputs suitable for driving 50 Ω loads terminated to -2V. The complementary PECL outputs from the PRL-420PD are suitable for driving 50 Ω loads terminated to +3V. The outputs of both units can also drive AC coupled or floating 50 Ω .

These Logic Level Translators are designed specifically for use in testing and interfacing of high speed digital communications circuits, where conversions from TTL/CMOS level signals to NECL and PECL level signals are often required. They are ideal building blocks that complement other PRL Logic Level Translators, such as the PRL-450ND, PRL-450PD, PRL-460NPD and PRL-460PND, etc. in systems integration applications where interconnections of mixed logic signals are often necessary.

They are ready-to-use functional modules housed in 1.3 x 2.9 x 3.9-in. extruded aluminum enclosures and are supplied with ± 8.5 V AC/DC Adaptors. Both units have BNC input connectors and SMA output connectors. Block diagrams of these Logic Level Translators are shown in Fig. 1A and Fig. 1B.

If mounting is desired, a pair of 35001420 mounting brackets can accommodate two PRL modules of the same length. A number of PRL modules can also share a single ± 8.5 V AC/DC adaptor using the PRL-730 or PRL-736 voltage distribution module. Please see the Accessories Section for more detail.

*SPECIFICATIONS (0° C ≤ T_A ≤ 35°C)

Unless otherwise specified, dynamic measurements are made with all outputs terminated into 50Ω/V_{TT}.

SYMBOL	PARAMETER	PRL-420ND			PRL-420PD			UNIT
		Min	Typ	Max	Min	Typ	Max	
R _{in}	Input Resistance	49.5	50	50.5	49.5	50	50.5	Ω
R _{out}	Output Resistance	NPN emitter			49.5	50	50.5	Ω
V _{TosH}	Input Threshold Voltage (High)	1.4	1.5	1.6	1.4	1.5	1.6	V
V _{TosL}	Input Threshold Voltage (Low)	0.9	1.0	1.1	0.9	1.0	1.1	V
V _{OL}	Output Low Level	-1.85	-1.7	-1.55	3.2	3.4	3.5	V
V _{OH}	Output High Level	-1.0	-0.8	-0.7	3.9	4.1	4.3	V
I _{DC}	DC Input Current		35 -132	45 -145		180 -315	200 335	mA
V _{DC}	DC Input Voltage	±7.5	±8.5	±12	±7.5	±8.5	±12	V
V _{AC}	AC/DC Adapter Input Voltage	103	115	127	103	115	127	V
t _{PLH}	Propagation Delay to output ↑		1.5			2		ns
t _{PHL}	Propagation Delay to output ↓		1.5			2		ns
t _r /t _f ⁽¹⁾	Rise/Fall Times (20%-80%)		750	850		1100	1250	ps
t _{SKew}	Skew: Vo↑ ↔ Vo↓		200	500		200	500	ps
t _{SKew}	Skew: Vo1↑ ↔ Vo2↑		200	500		200	500	ps
f _{max} ⁽²⁾	Max Clock Frequency	200	300		200	300		MHz
V _{TosH}	Input Threshold Voltage (High)							
f _{max} ⁽²⁾	Max Clock Frequency	300	400		300	400		MHz
V _{TosL}	Input Threshold Voltage (Low)							
	Size	1.3x2.9x3.9			1.3x2.9x3.9			in.
	Shipping Weight, incl. AC adapter	3			3			lb.

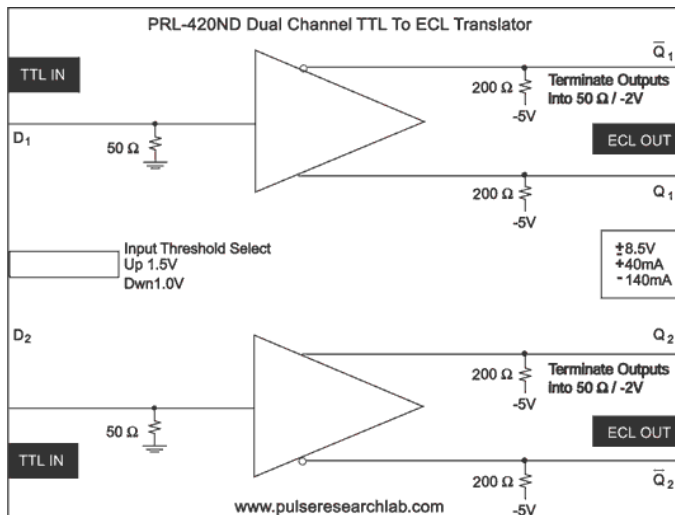


Fig. 1A PRL-420ND Block Diagram

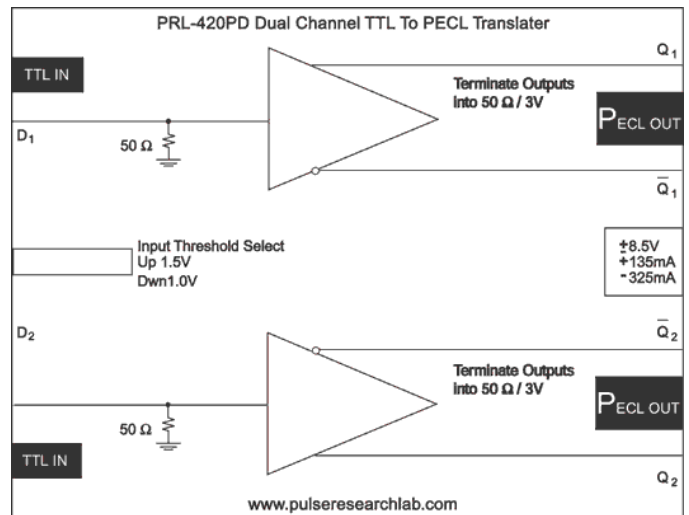


Fig. 1B PRL-420PD Block Diagram

Notes:

(1). The output rise and fall times are measured with both the Q and \bar{Q} outputs terminated into 50 Ω/V_{TT}, using the PRL-550NQ4X/PRL-550PQ4X, four channel NECL/PECL Terminators, connected to a 50Ω input sampling oscilloscope. V_{TT} = -2V for NECL and +3V for PECL. If either output is left unterminated, both the rise and fall times will increase by approximately 15%, due to slight degradation of the pulse corners.

(2). f_{MAX} for the PRL-420ND is measured by connecting its inputs to the PRL-450ND, NECL to TTL Logic Level Translator, and its outputs to the +2 differential inputs of the PRL-255N NECL frequency divider. The outputs of the PRL-255N are then measured using the PRL-550NQ4X, four channel NECL Terminators, connected to a 50 Ω input sampling 'scope. Similarly, f_{MAX} for the PRL-420PD is measured using the PRL-450PD as the input driver, and its outputs are connected to the differential inputs of the PRL-255P PECL frequency divider. The outputs of the PRL-255P are then measured using the PRL-550PQ4X, four channel PECL Terminators, connected to a 50 Ω input sampling 'scope.