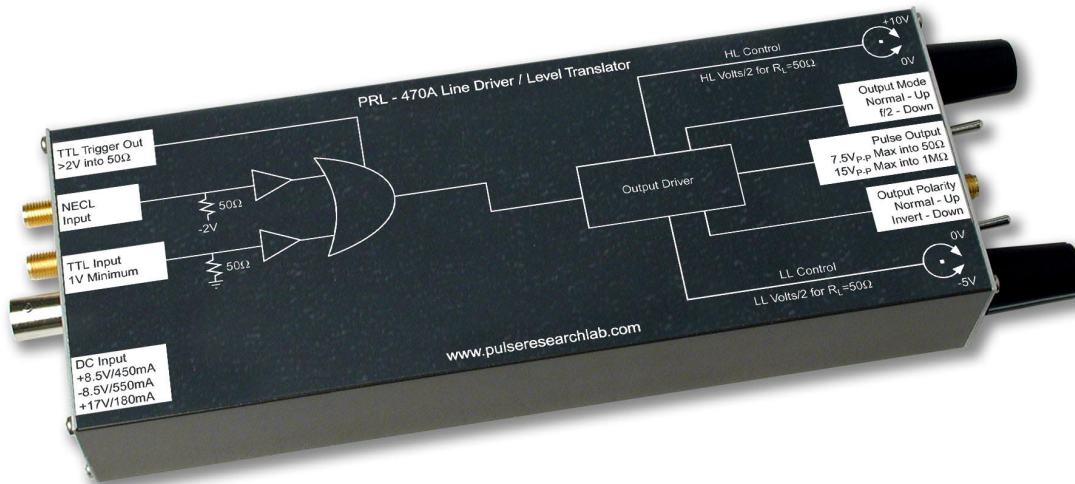


PRL-470A HIGH SPEED LINE DRIVER/LEVEL TRANSLATOR



Applications

- Long Line Driver/ Level Translator
- TTL/CMOS/ECL Device Testing
- Amplifier Large Signal Response Testing
- TDR Source for Cable Testing
- A Basic Laboratory Tool (BLT)

Features

- $t_r = 850$ ps Typical @ 5 V Output into 50 Ω
- +5 V/-2.5 V Output HL/LL into 50 Ω
- Normal or Inverted Output
- f/2 Mode for Square Wave Output
- f_{max} to 300 MHz @ 3.5 V Output
- TTL and Single-ended NECL Compatible Inputs (logically ORed)
- Self-contained 1.3 x 2.9 x 8-in. Module includes an AC/DC adapter

GENERAL DESCRIPTION

The PRL-470A is a high speed 50 Ω Line Driver/Level Translator with independently variable output Hi and Lo levels. It has TTL- and NECL-compatible inputs. The TTL input has a 50 Ω to ground termination, and the single-ended NECL input has a 50 Ω /-2 V termination. The TTL and NECL inputs are logically ORed; therefore a Hi level applied to either input can be used as a gate signal. The PRL-470A is an improved version of the earlier Model PRL-470.

The output Hi and Lo levels are independently variable from 0 V to +5 V and 0 V to -2.5 V into 50 Ω , respectively, or +10 V and -5 V into 1 M Ω . The maximum output peak to peak swing is 6 V into 50 Ω , or 12 V into 1 M Ω . The back-terminated 50 Ω output can drive long 50 Ω lines with or without load termination. A Normal/Invert switch provides output logic polarity selection, and an f/2 switch provides square wave output. The 50 Ω TTL input requires less than 1 V for triggering.

The 850 ps rise time output makes the PRL-470A a cost effective TDR source for testing cables. Typical maximum clock rate is 300 MHz @3.5 V output and 250 MHz @5 V output, well suited for testing logic circuits of different families, amplifiers and many semiconductor devices.

The 2.2 V 50 Ω TTL trigger output can drive two other PRL-470A's using a 6 dB splitter or other TTL compatible circuits. The self-contained 1.3 x 2.9 x 8-in module is supplied with a ± 8.5 V/+17 V AC/DC adapter.

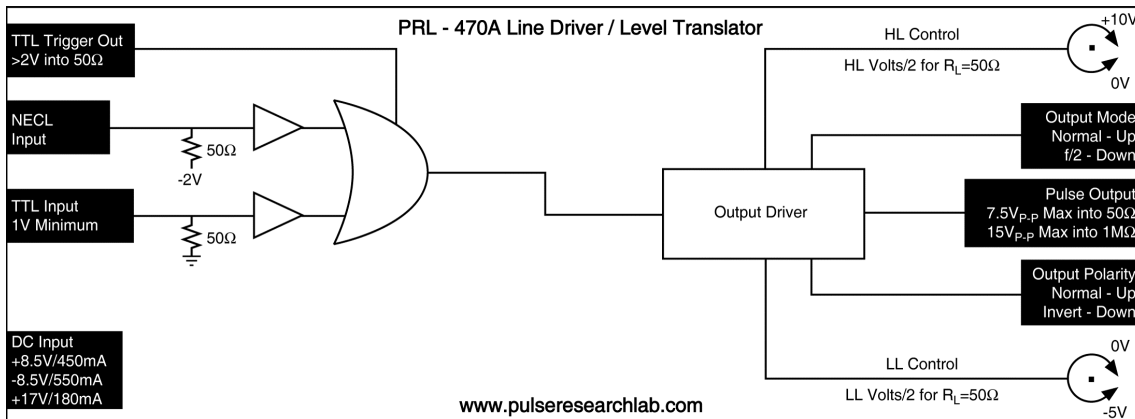
Multiple PRL-470A modules together with other PRL logic function modules, such as Clock Sources, Fanout devices, Frequency Dividers, Programmable Delay Lines, Logic Level Translators, etc., can be rack-mounted for systems test applications. Consult factory for more information.



SPECIFICATIONS (0° C ≤ T_A ≤ 35° C)

Unless otherwise specified, dynamic measurements are made with all outputs terminated into 50Ω.

SYMBOL	PARAMETER	Min	Typ	Max	UNIT	Comments
R _{in}	Input Resistance	49.5	50	50.5	Ω	
R _{in} /V _{TT}	TTL Input Termination NECL Input Termination		50 Ω to ground 50 Ω/-2 V			
V _{IL}	TTL input Low Level NECL input Low Level	-0.5 -2.4	0 -1.8	0.5 -1.5	V	
V _{IH}	TTL input High Level NECL Input High Level	0.8 -1.0	0.85 -0.8	5.0 -0.5	V	
V _{OL}	Output Low Level	-2.5/-5		0	V	R _L =50 Ω/1 MΩ
V _{OH}	Output High Level	0		5/10	V	R _L =50 Ω/1 MΩ
V _{p-p}	Output Voltage Swing	0.8/1.6		6/12*	V	R _L =50 Ω/1 MΩ
I _{DC}	DC Input Currents		+420/-500 +120	+450/-550 +180	mA	+8.5 V/-8.5 V +17 V
V _{DC}	DC Input Voltages	±7.5 +15	±8.5 +17	±12 +20	V	
V _{AC}	AC/DC Adapter Input Voltage	103	115	127	V	
t _{PLH} /t _{PHL} Vo	Prop. Delay to Output ↑/↓		5.5	7.5	ns	V _{OL} =0 V, V _{OH} =5 V
t _{PLH} /t _{PHL} Vot	Prop. Delay to Trigger Output ↑/↓		2.5	3.5	ns	
t _{r1} /t _{f1}	Output Rise/Fall Times (10%-90%)		0.85/1.3	0.9/1.5	ns	V _{OL} =0 V, V _{OH} =5 V
t _{r2} /t _{f2}	Output Rise/Fall Times (10%-90%)		0.85/1.2	0.9/1.2	ns	V _{OL} =0 V, V _{OH} =3.5 V
t _{r3} /t _{f3}	Output Rise/Fall Times (10%-90%)		0.85/1.2	0.9/1.4	ns	V _{OL} =-2.5 V, V _{OH} =2.5 V
T _{SKEW}	Skew between Vo↑ and Vo↓		100	300**	ps	V _{OL} =0 V, V _{OH} =5 V F=50 MHz, PW=5 ns
F _{max1}	Maximum Clock Frequency	225	250		MHz	V _{OL} =0 V, V _{OH} =5 V
F _{max2}	Maximum Clock Frequency	250	300		MHz	V _{OL} =0 V, V _{OH} =3.5 V
F _{max3}	Maximum Clock Frequency	250	300		MHz	V _{OL} =-2.5 V, V _{OH} =2.5 V
F _{max4}	Max. Input Clock Frequency	500	600		MHz	Square Wave Mode
PW _{Min}	Minimum Output Pulse Width		2	2.5	ns	V _{p-p} =5 V
ΔPW	Output PW change, Vo↑ to Vo↓		100	400**	ps	V _o =0 to 5 V, PW=5 ns
Vo Trig	Trigger Output	2	2.2		V	R _L =50 Ω, f ≤ 250 MHz
	Size	1.3 x 2.9 x 8			in.	
	Weight	13			Oz	



www.pulseresearchlab.com
PRL-470A Block Diagram

*Maximum output swing is internally limited.
** Skew and ΔPW may vary with different output level, frequency and pulse width settings



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