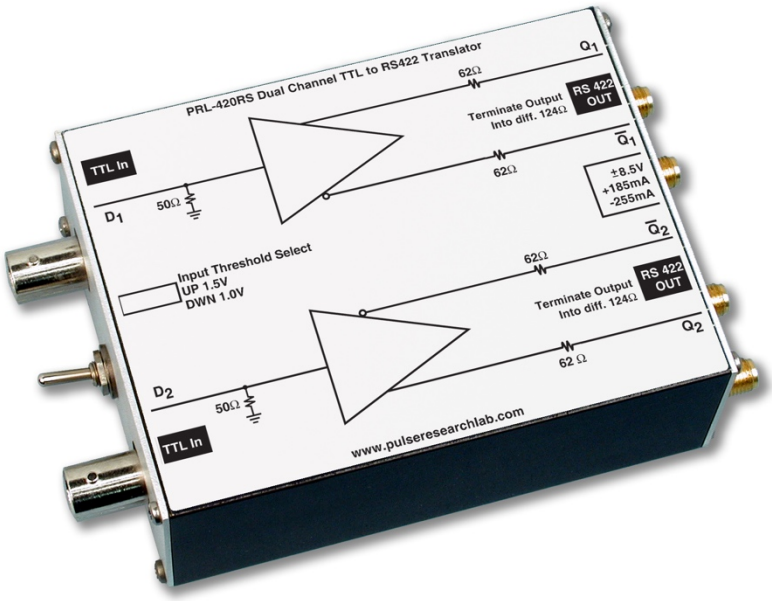
PRL-420RS/RSTR DUAL CHANNEL TTL to RS-422 Translator

APPLICATIONS

- **Converting TTL/CMOS Signals to Differential 124 Ω RS-422 Signals**
- **High Speed Digital Communications Systems Testing**
- **Differential Long Line Drivers**

FEATURES

- **f_{max} > 250 MHz**
- **1.2 ns Typical Output Rise & Fall Times**
- **TTL Compatible 50 Ω Input**
- **1.5 V or 1 V Selectable Input Threshold**
- **Complementary 124 Ω Outputs**
- **BNC Input/SMA Output Connectors for PRL-420RS**
- **BNC Input/Triax Output Connectors for PRL-420RSTR**
- **DC Coupled I/Os**
- **Self-contained 1.3 x 2.9 x 3.9-in. unit including an AC/DC Adapter**



PRL-420RS

DESCRIPTION

The PRL-420RS is a dual channel, single-ended TTL input, differential 124 Ω RS-422 output line driver. Each channel has a 50 Ω TTL/CMOS compatible input and a pair of differential 124 Ω outputs for driving long lines, in excess of 100 ft, terminated into differential 124 Ω loads. The input threshold voltage can be selected between 1.5V and 1V using a front panel switch. The 1 V threshold makes it easy to interface with 3.3V TTL/CMOS devices.

The PRL-420RS outputs are designed to interface with the 124 Ω differential Serial Data/ $\overline{\text{Data}}$ or Clock/ $\overline{\text{Clock}}$ inputs of the data communications equipment and also for use in testing and interfacing of high speed digital communication circuits. The PRL-420RS complements other PRL-series Level Translators, such as the PRL-420ND/PD, PRL-450ND/PD, and PRL-460NPD/PND, etc., in system integration applications where interconnections among different logic signals are often necessary.

The PRL-420RS is a ready-to-use functional module housed in a 1.3 x 2.9 x 3.9-in. extruded aluminum enclosure and is supplied with a ±8.5 VAC/DC Adapter. BNC input and SMA output connectors are provided for the PRL-420RS model, and Triax output connectors for the PRL-420RSTR model. A block diagram showing the equivalent input and output circuits of the PRL-420RS are shown in Fig's. 1A and 1B.

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SPECIFICATIONS (0^0 C ≤ T_A ≤ 35^0C)

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	
Rout	Differential Output Resistance	122.6	124	125.3	Ω	
V_{TOSH}	Input Threshold Voltage (high)	1.4	1.5	1.6	V	
V_{TOSL}	Input Threshold Voltage (low)	0.9	1	1.1	V	
V_{IL}	TTL input Low Level	-0.5	0	0.5	V	
V_{IHH}	TTL input High Level	1.8	2	5	V	V_{TOSH}
V_{IHL}	TTL input High Level	1.2	1.3	5	V	V_{TOSL}
V_{OL}	RS422 Output Low Level	-0.05	0	0.2	V	Diff.124Ω load
V_{OH}	RS422 Output High Level		2.3	2.5	V	Diff.124Ω load
I_{DC}	DC Input Currents		185 -255	200 -275	mA mA	
V_{DC}	DC Input Voltages	±7.5	±8.5	±12	V	
V_{AC}	AC/DC Adaptor Input Voltage	103	115	127	V	
T_{PLH}	Propagation Delay to output ↑		2		ns	
T_{PHL}	Propagation Delay to output ↓		2		ns	
t_r/t_f	Rise/Fall Times (10%-90%)		1.2	1.4	ns	Note (1)
T_{SKEW}	Skew between any 2 outputs		150	400	ps	
f_{max}	Max Clock Frequency	250	300		MHz	Note (2)
	Size		1.3x2.9x3.9		in.	
	Weight		5		Oz	

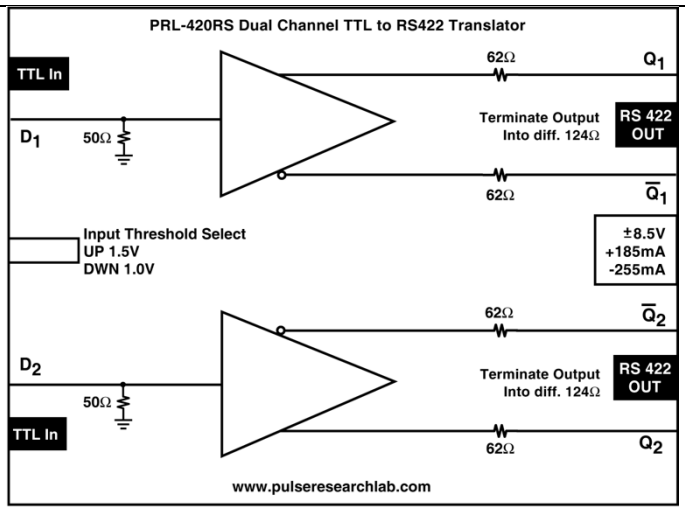


Fig. 1A PRL-420RS Block Diagram

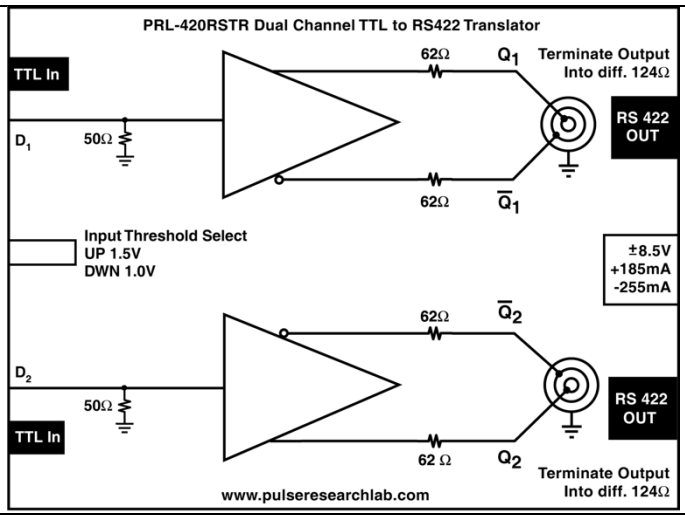


Fig. 1B PRL-420RSTR Block Diagram

Notes:

(1). The output rise and fall times are measured with both the Q and $\overline{Q}$ outputs terminated into 50 Ω.

(2). f_{MAX} is measured by connecting its inputs to the PRL450ND, ECL to TTL Logic Level Translator, and its outputs to the PRL-422RS, RS422 to NECL translator. The outputs of the PRL 422RS are then measured using the PRL-550NQ4X, four channel ECL Terminators, connected to a 50 Ω input sampling scope.

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