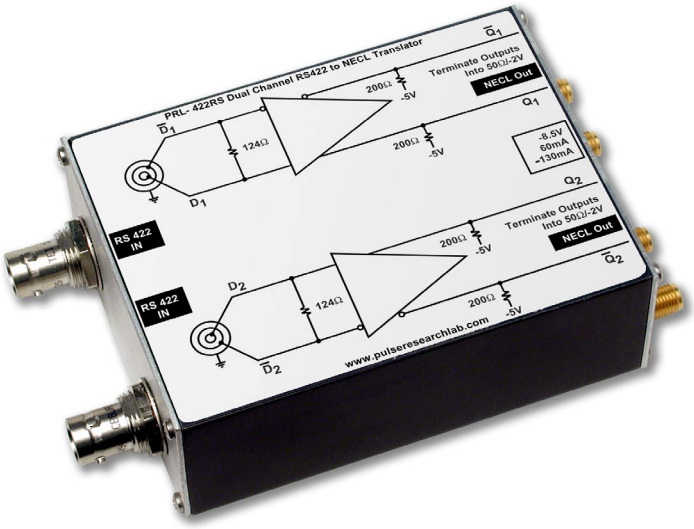
PRL-422NECL/422RS DUAL CHANNEL NECL TO RS422 and RS422 TO NECL TRANSLATORS

APPLICATIONS

- Essential Lab Tools for interfacing with High Speed Data Communications Equipment
- The PRL-422 NECL converts single ended or differential 50Ω SMA NECL inputs to differential 124Ω RS422 Triax outputs
- The PRL-422RS converts differential 124Ω RS422Triax Inputs to differential 50Ω SMA NECL outputs

FEATURES

- 400 MHz maximum Clock Rate
- Internal Single Ended or Differential 50Ω/-2V Input terminations for PRL-422NECL
- Differential 124Ω Input terminations for PRL-422RS
- Complementary 50Ω NECL Outputs for PRL-422RS
- Differential 124Ω RS422 Outputs for PRL-422NECL
- Ready-to-Use 1.3 x 2.9 x 3.9-in. Modules, including ±8.5 V/1.4 A AC/DC Adapters



PRL-422RS

DESCRIPTION

The PRL-422NECL and PRL-422RS are a pair of dual channel, high speed logic level translators. They are designed specifically for use with high speed data communications applications. The PRL-422NECL converts single ended or differential 50Ω NECL inputs to differential 124Ω RS422 outputs. The PRL-422RS converts differential 124Ω RS422 inputs to differential 50Ω NECL outputs. Functional block diagrams of these devices are shown in Fig. 1 and Fig. 2.

The differential inputs of the PRL-422NECL have SMA connectors. A switch selects either single-ended or differential inputs. In the differential input mode, both inputs D and $\overline{D}$ are terminated internally into 50Ω/-2V, 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. The $\overline{D}$ inputs are switched internally to V_{BB}, nominally -1.3V, and termination resistors $\overline{R}_T$'s for the $\overline{D}$ input channels are changed to 62Ω. The outputs of the PRL-422NECL have two triax connectors, and they are designed to interface with the 124Ω differential Serial Data/Data or Clock/Clock inputs of the data communications equipment. Internal pull-down resistors enable these outputs to drive differential 75Ω loads as well.

The inputs of the PRL-422RS consist of two triax connectors, each internally terminated with 124Ω between the pin and the ring. They are designed to interface with the 124Ω differential Serial Data/Data or Clock/Clock outputs from the data communications equipment. The complementary NECL outputs have SMA connectors. They are designed for driving 50Ω loads terminated to -2V, and, with internal pull-down resistors, they can be AC coupled to ground-referenced 50Ω loads as well.

The PRL-422NECL and PRL-422RS are each housed in an attractive 1.3 x 2.9 x 3.9-in. extruded aluminum enclosure. Optional mounting brackets are available. Each unit is supplied with a ±8.5 V/1.4 A AC/DC Adapter.

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*SPECIFICATIONS (0^0 C ≤ T_A ≤ 35^0C)

		PRL-422RS			PRL-422NECL			
SYMBOL	PARAMETER	Min	Typ	Max	Min	Typ	Max	UNIT
R_{in}	Input Resistance	122	124	126	49.5	50	50.5	Ω
V_{TT}	Input Termination Voltage		NA		-1.8	-2	-2.2	V
I_{DC}	DC Input Current		30/-130	60/-150		30/-250	60/-300	mA
V_{DC}	DC Input Voltage	±7.5	±8.5	±12	±7.5	±8.5	±12	V
V_{AC}	AC/DC Adaptor Input Voltage	103	115	127	103	115	127	V
t_{PLH}	Propagation Delay to output ↑		2000			2000		ps
t_{PHL}	Propagation Delay to output ↓		2000			2000		ps
t_r/t_f	Rise/Fall Times[1](20%-80%)		750	850		NA		ps
f_{max}	Maximum Clock Frequency[2]	400	600		400	600		MHz
t_{SKEW1}	Skew between outputs		20	200		20	200	ps
t_{SKEW2}	Skew from unit to units		40	400		40	400	ps
	Input Connector		Triax[3]			SMA		
	Output Connector		SMA			Triax[3]		
	Input Cables		124Ω TP[4]			50Ω Coax		
	Output Cables		50Ω Coax			124Ω TP[4]		
	Size		1.3x2.9x3.9			1.3x2.9x3.9		in.
	Weight		7			7		Oz

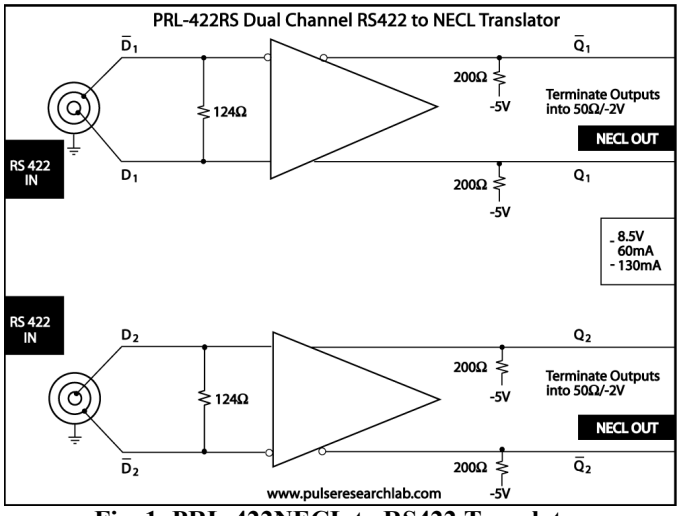

Fig. 1 PRL-422NECL to RS422 Translator

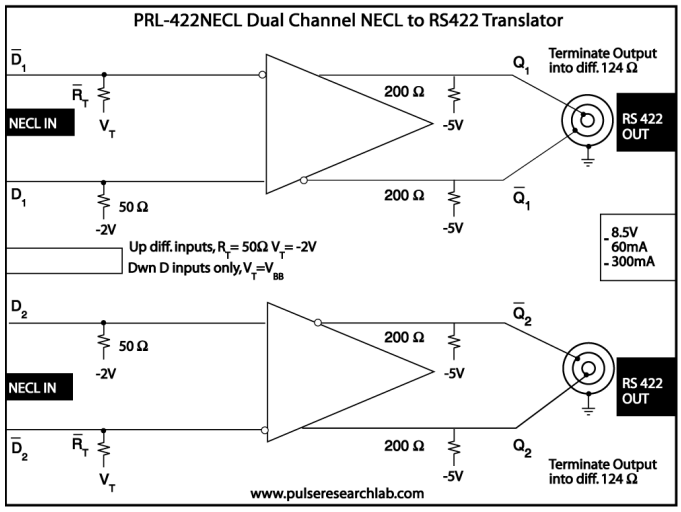

Fig. 2 PRL-422RS to NECL Translator

PRL-422NECL and PRL-422NECL are equivalent modules.
*Since the high frequency signals to and from the 124Ω I/O ports can not be easily measured, the 124Ω I/O ports of these adapters are first cascaded using shielded twisted pair cables, Trompeter P/N PCGOW10PCG-36 or equivalent. Input signals are applied to the 50Ω inputs of the PRL-422NECL, and outputs of the PRL-422RS are terminated into 50Ω/-2V, using the PRL-550NQ5X, four-channel NECL Terminators, connected to a 50 Ω input sampling oscilloscope.

Notes:

(1). The 50Ω output rise and fall times were measured with both the Q and $\overline{Q}$ outputs terminated into 50Ω/-2V. If one output is not terminated, both the rise and fall times will increase by approximately 15%, and output waveform degradation will occur.
(2). f_{MAX} is measured using the differential input mode(switch up). The differential outputs are first divided by four, using the PRL-255Ns, ÷2 and ÷4 frequency divider module, and then measured using the PRL-550NQ4X, four channel NECL Terminators, connected to a sampling 'scope.
(3). Trompeter P/N CBBJR79.
(4). Trompeter P/N PCGOW10PCG-36

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