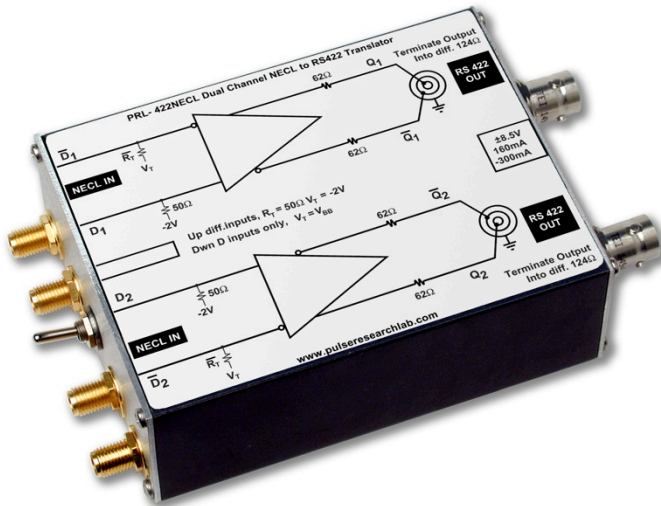
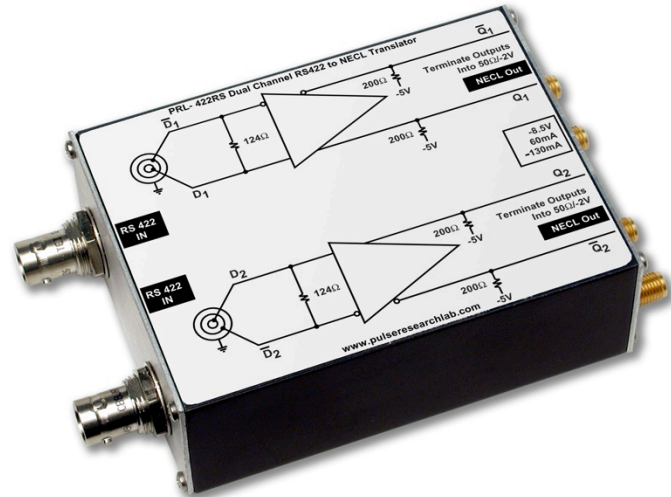


PRL-422NECL/422RS DUAL CHANNEL NECL TO RS422 and RS422 TO NECL TRANSLATORS



PRL-422NECL



PRL-422RS

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 RS422 Triax 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

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 \bar{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 \bar{D} inputs are switched internally to V_{BB} , nominally -1.3V, and termination resistors R_T 's for the \bar{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.

***SPECIFICATIONS (0° C ≤ T_A ≤ 35°C)**

| SYMBOL | PARAMETER | PRL-422RS | | | PRL-422NECL | | | UNIT |
|--------------------------------|--|-----------|----------------------|---------|-------------|----------------------|---------|------|
| | | Min | Typ | Max | Min | Typ | Max | |
| 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 |

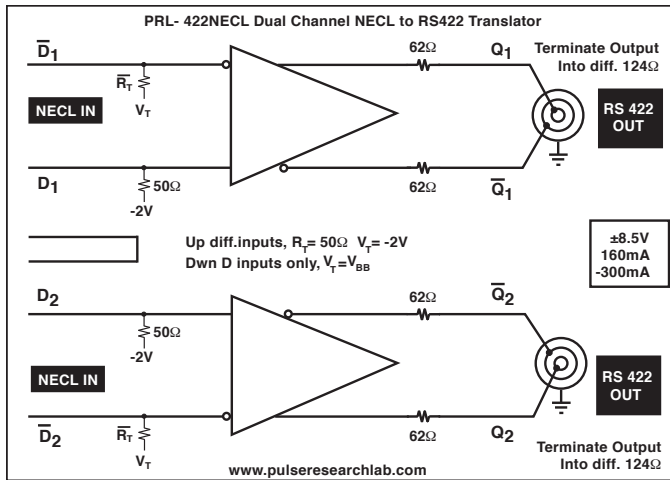


Fig. 1 PRL-422NECL to RS422 Translator

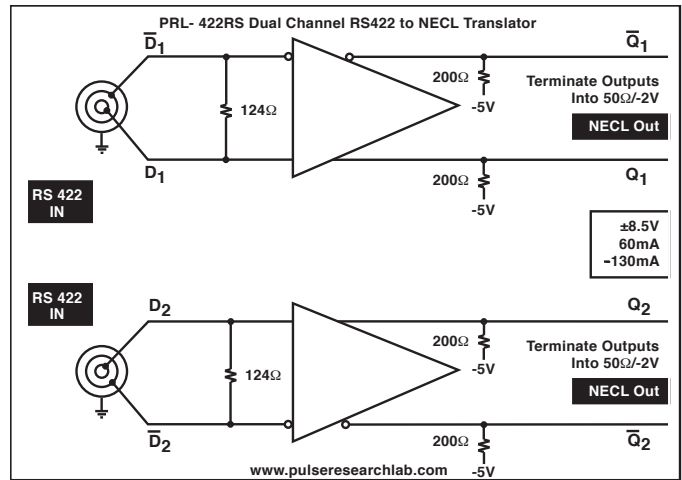


Fig. 2 PRL-422RS to NECL Translator

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 Q̄ 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