

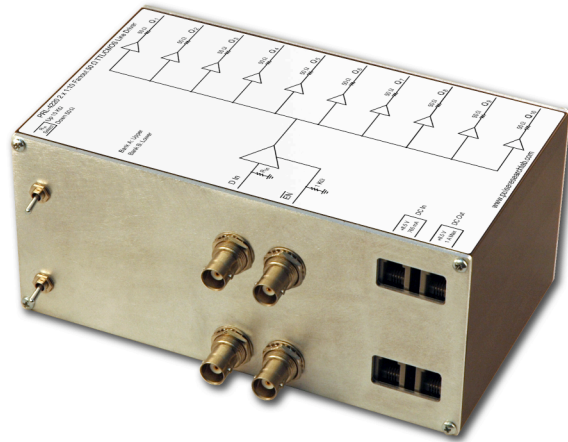
PRL-4220, 2:20 FANOUT 50 Ω TTL LINE DRIVER

APPLICATIONS

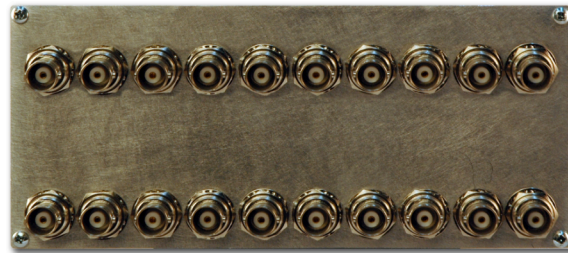
- TTL/CMOS Clock Distribution
- 2 x 1:10 Fanout Line Driver
- High Speed Digital Communications System Testing
- Mini Modular Instrument

FEATURES

- $f_{MAX} > 100$ MHz
- Drives 100 ft of cable @ 80 MHz
- 1.8 ns Typical Output Rise & Fall Times
- 2.5 V into 50 Ω Typical
- TTL Compatible 50 Ω or 10 k Ω Input
- 20 in-phase 50 Ω TTL Outputs (two sets of 10)
- Active Low \overline{EN} (Enable) Input
- BNC I/O Connectors
- DC Coupled I/Os
- Self-contained 3.0 x 6.8 x 4.0-in. unit includes an AC/DC Adapter



PRL-4220-BNC, Front View



PRL-4220-BNC, Rear View

DESCRIPTION:

The PRL-4220 is a 2 x 1:10 fanout 50 Ω TTL Line Driver. It is intended for distribution of two independent high-speed clock and logic signals (e.g. CLK and DATA) to multiple loads via long lines. The 50 Ω back-terminated outputs can drive long lines with or without 50 Ω load terminations. With 50 Ω load terminations, however, all outputs of the PRL-4220 can drive 100 ft of 50 Ω cables at clock rates greater than 80 MHz. The PRL-4220 is implemented as two separate, independent 1:10 fanout buffers on two PCBs in a single enclosure.

The input resistance of each 1:10 fanout board can be independently selected to be either 50 Ω or 10 k Ω by a switch. The 10 k Ω -input is desirable when interfacing with low power circuits. The 50 Ω back terminated outputs typically deliver 2.5 V into 50 Ω or 5.0 V into Hi-Z loads. All I/Os are DC coupled and have BNC connectors. SMA I/Os are available on special order.

Each board also has a TTL-compatible \overline{EN} input pulled down via a 1 k Ω resistor. When left open the Enable is active, and the fanout buffer will output signals. Each board can be disabled by driving its \overline{EN} input high.

The PRL-4220 is housed in a 3.0 x 6.8 x 4.0-in. extruded aluminum enclosure and is supplied with the PRL-760C, ± 8.5 V/ ± 1.8 A AC/DC Adapter.

A block diagram showing the equivalent input and output circuits of the PRL-4220 is shown in Fig. 1.

ORDERING INFORMATION:

PRL-4220-BNC, 2:20 Fanout 50 Ω TTL Line Driver, BNC I/Os

PRL-4220-SMA, 2:20 Fanout 50 Ω TTL Line Driver, SMA I/Os

RELATED PRODUCTS:

PRL-4110, 1:10 Fanout 50 Ω TTL Line Driver

PRL-4330, 3:30 Fanout 50 Ω TTL Line Driver, equivalent to three PRL-4110 units in a single enclosure

PRL-4122, 1:22 Fanout 50 Ω TTL Line Driver, equivalent to one PRL-414B driving two PRL-4110 units in a single enclosure

SPECIFICATIONS* (0 °C ≤ T_A ≤ 35 °C)

Unless otherwise specified, dynamic measurements are made with the input set to 50 Ω and all outputs terminated into 50 Ω.

SYMBOL	PARAMETER	Min	Typ	Max	UNIT	Comments
R _{IN Low}	Input Resistance Low Range	49.5	50.0	50.5	Ω	
R _{IN Hi}	Input Resistance High Range	9.9	10.0	10.1	kΩ	
R _{IN EN}	Input Resistance, Enable		1		kΩ	
R _{OUT}	Output Resistance		50		Ω	
V _{IL}	TTL Input Low Level	-0.5	0.0	0.5	V	
V _{IH}	TTL Input High Level	2.0	2.4	5.0	V	
V _{IL EN}	$\overline{\text{EN}}$ Input Low Level	-0.5	0.0	0.5	V	
V _{IH EN}	$\overline{\text{EN}}$ Input High Level	2.0	2.4	5.0	V	Drive $\overline{\text{EN}}$ High to disable output
V _{OL}	TTL Output Low Level	0.0	0.25	0.5	V	R _L =50 Ω
V _{OH1}	TTL Output High Level	2.2	2.5		V	R _L =50 Ω @ DC
V _{OH2}	TTL Output High Level	4.4	5.0		V	R _L =1 MΩ @ DC
I _{DC1}	DC Input Current		1000		mA	f=50 MHz sq. wave ⁽¹⁾
I _{DC2}	DC Input Current		1230		mA	f ≤ 100 MHz
I _{DC3}	DC Input Current			1450	mA	f=125 MHz
V _{DC}	DC Input Voltages	7.75	8.50	12.00	V	
V _{AC}	AC/DC Adapter Input Voltage	103	115	127	V	
T _{PLH}	Propagation Delay to output ↑		9	12	ns	
T _{PHL}	Propagation Delay to output ↓		9	12	ns	
t _r /t _f	Rise/Fall Times (10%-90%)		1.8/1.5	2.5	ns	
T _{SKEW1}	Skew between any 2 outputs		500	900	ps	Within one 1:10 bank
T _{SKEW2}	Skew between any 2 outputs		1000	1400	ps	Any two outputs
F _{MAX1}	Max. Clock Frequency ⁽²⁾	100	125		MHz	RG58C/U, cable length =3 ft
F _{MAX2}	Max. Clock Frequency		80			RG58C/U, cable length = 100 ft
PW _{MIN}	Minimum Pulse Width		4		ns	↑ Input
PW _{MIN}	Minimum Pulse Width		6		ns	↓ Input
	Size	3.0 x 6.8 x 4.0			in.	
	Weight	1.5			lb.	Excluding AC adapter

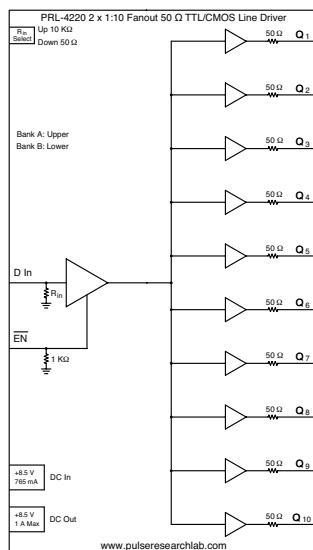


Fig. 1: PRL-4220 Block diagram

Notes:

- (1) f_{MAX} should not exceed 125 MHz, otherwise damage of the unit due to overheating may result.
- (2) f_{MAX2} is measured by driving a second PRL-4110 at the end of a 100 ft cable.