

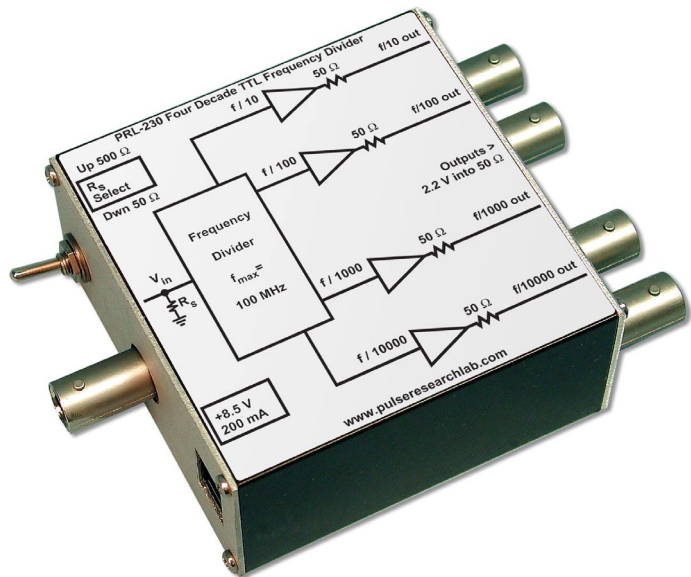
# PRL-230 $\div 10$ , $\div 100$ $\div 1k$ and $\div 10k$ TTL FREQUENCY DIVIDER

## APPLICATIONS

- Count-down signal for 'scope trigger
- Applications requiring very large division ratios
- Counter Output simulation
- Square Wave Generator (Except  $\div 10$  Output)
- An Essential Lab Tool for Working with TTL/CMOS Circuits

## FEATURES

- 100 MHz Toggle Frequency
- 50  $\Omega$  Outputs deliver  $> 2.2V$  into 50  $\Omega$  loads
- TTL/CMOS Compatible Input Levels
- 50  $\Omega$  or 500  $\Omega$  Input Resistance
- BNC or SMA I/O Connectors
- Ready-to-Use 1.3 x 2.9 x 2.9-in. Module includes AC/DC Adapter



PRL-230 4-Decade Frequency Divider

## DESCRIPTION

The PRL-230 is a four-decade TTL frequency divider capable of operating at clock frequencies in excess of 100 MHz. It has  $\div 10$ ,  $\div 100$ ,  $\div 1k$  and  $\div 10k$  50  $\Omega$  outputs, each capable of delivering greater than 2.2 V into a 50  $\Omega$  load. Except for the  $\div 10$  channel, all others have square outputs (50% duty cycle). For the  $\div 10$  channel, the output pulse width is equal to the period ( $1/f$ ) of the input signal. The PRL-230 is ideally suited for applications that require very large division ratios, and the square wave outputs are useful for testing High-pass and Low-pass filters. When used together with the PRL-260NT programmable frequency divider, they can generate divided signals from 1.2 GHz down to 234 Hz. Multiple units can be cascaded for further division.

The input resistance of the PRL-230 can be selected to be 500  $\Omega$  or 50  $\Omega$  by a toggle switch. The back-matched 50  $\Omega$  outputs of this frequency divider can drive long lines with or without 50  $\Omega$  terminations. A functional block diagram of the unit is shown in Fig. 1.

The PRL-230 is housed in a 1.3 x 2.9 x 2.9-in. extruded aluminum enclosure. The PRL-230-BNC has BNC I/O connectors, and the PRL-230-SMA has SMA I/O connectors. A  $\pm 8.5$  V AC/DC adapter is included.

If mounting is desired, a pair of 35001420 mounting brackets can accommodate two PRL modules of the same length. A number of PRL modules can also share a single  $\pm 8.5$  V AC/DC adaptor using the PRL-730 or PRL-736 voltage distribution module. Please see the Accessories Section for more detail.

**\*SPECIFICATIONS (0° C ≤ T<sub>A</sub> ≤ 35°C)**

All AC measurements are made with all outputs terminated into 50Ω

SYMBOL	PARAMETER	Min	Typ	Max	UNIT	Comments
R <sub>in</sub> (Lo)	Input Resistance	49.5	50	50.5	Ω	
R <sub>in</sub> (Hi)	Input Resistance	495	500	505	Ω	
I <sub>DC</sub>	DC Input Current		175	200	mA	
V <sub>DC</sub>	DC Input Voltage	7.5	8.5	12	V	
V <sub>AC</sub>	AC/DC Adapter Input Voltage	103	115	127	V	
V <sub>IH</sub>	Input HI Level	2.0	2.2	5.0	V	
V <sub>IL</sub>	Input LO Level	-0.5	0	0.5	V	
V <sub>OH</sub>	Output Hi Level	2.2 4.8	2.5 5		V V	R <sub>L</sub> =50 Ω R <sub>L</sub> =1 MΩ
V <sub>OL</sub>	Output Lo Level		0.15 0.3	0.25 0.5	V V	R <sub>L</sub> =50 Ω R <sub>L</sub> =1 MΩ
T <sub>PLH</sub> / T <sub>PHL</sub>	Propagation Delay to f/10 output		4	8	ns	
T <sub>PLH</sub> / T <sub>PHL</sub>	Propagation Delay to f/100 output		15	30	ns	
T <sub>PLH</sub> / T <sub>PHL</sub>	Propagation Delay to f/1k output		30		ns	
T <sub>PLH</sub> / T <sub>PHL</sub>	Propagation Delay to f/10k output		60		ns	
t <sub>r</sub> /t <sub>f</sub>	Rise/Fall Times (10%-90%)		2/1.8	3	ns	
F <sub>MAX</sub>	Max clock frequency	100	125		MHz	R <sub>in</sub> = 50 Ω
	Size	1.3 x 2.9 x 2.9			in.	
	Weight	5			Oz	

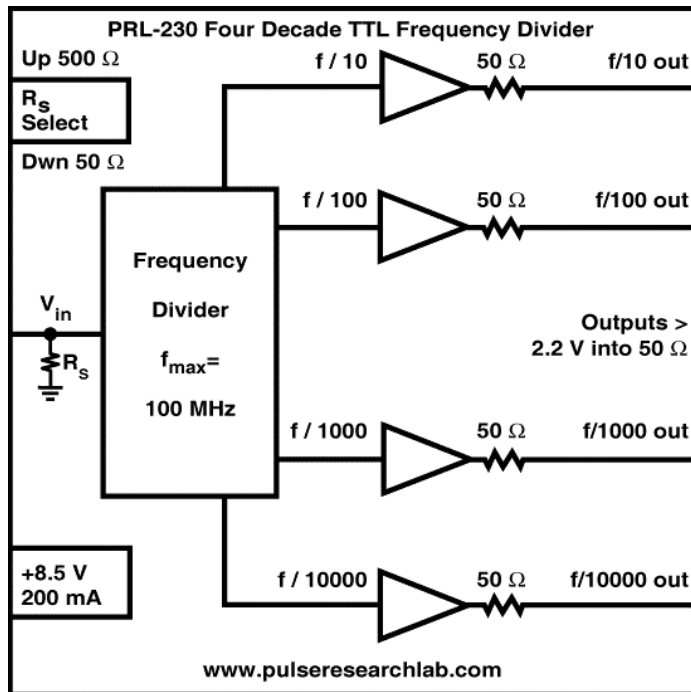


Figure 1A: PRL-230 Block Diagram