

# Model LW800, 800 MHz Discriminator **FAST** with fiber optical isolation

## FEATURES

- Ultra high pulse repetition rates
- > 800 MHz count rate
- High voltage isolation of detector and acquisition electronics
- $\pm 1.2V$  signal input range
- Inverting / non-inverting fast NIM outputs
- $\pm 0.64V$  input threshold voltage range
- $< 100mV_{p-p}$  input sensitivity
- $\pm 2A @ 1\mu sec$  input protection
- Easy signal extraction from high side detectors

## APPLICATIONS

- Protection of valuable data acquisition electronics
- Timing signal extraction from high side detectors
- Ultra high count rate time resolved single photon and Ion counting
- TOF Mass Spectrometry
- LIDAR

## DESCRIPTION

The LW800 consists of the 800 MHz Discriminator/Transmitter Module TX800 and the Receiver/Output Module RX800. The fiber optical coupling of the ultra fast discriminator to the RX800 Output Module is ideally suited for de-coupling ultra high count rate timing signals from detectors at high voltage levels. The fiber optical connection to the data acquisition system provides full electrical isolation from the detector system independent of the voltage difference. High voltage capacitors are no longer required to extract timing signals from detector systems at high voltage levels.

Also is it perfectly useful for the protection of your valuable data acquisition systems from potentially harmful high voltage sparks or discharges on the detector side.

With the high pulse repetition rate of over 800 MHz it is one of the fastest if not the fastest discriminator commercially available today. It is optimized for high count rate timing applications like time resolved single photon and ion counting.

## SPECIFICATIONS

### Transmitter TX800 (detector side):

Input:  $\pm 1.2V$  signal range, BNC, 50 Ohm, dc coupled,  $< 100mV_{p-p}$  sensitivity, input diode protection  $\pm 2A$  for 1 $\mu sec$  Min. pulse width 625 ps (below and above threshold)

Threshold:  $\pm 0.64V / \pm 0.13V$  switch selectable range, adjustable in 255 (5mV / 1mV) steps via up / down button

Outputs: 

- Threshold monitor, BNC, 2 kOhm output impedance for use with high impedance (typ. 10 MOhm) voltmeters
- Fiber optic ST-receptacle, for 50/125 $\mu m$  fiber cables



LW800 29052006

## Transmitter TX800 continued

- Power supply, 2.35mm center pin, for 12V / 200mA DC **floating** supply

## Receiver RX800:

- Input:
- Fiber optic ST-receptacle, for 50/125µm fiber cables
  - Power supply, 2.35mm center pin, for 12V / 250mA DC **floating** supply
- Outputs: Signal outputs, BNC, 50 Ohm back terminated current mode, fast NIM type (16mA into 50 Ohm to GND) , inverting and non-inverting

## **Power Requirements:**

External Power Supply one each for TX800 and RX800  
12V, 250 mA DC (floating)

## **Ordering Information:**

**Model: LW800**, Order No. PA011  
including  
TX800 with power supply  
Power supply connector (to enable the user to connect the TX800 to a battery pack)  
RX800 with power supply  
Fiber-optical connection cable, lengths: 2m