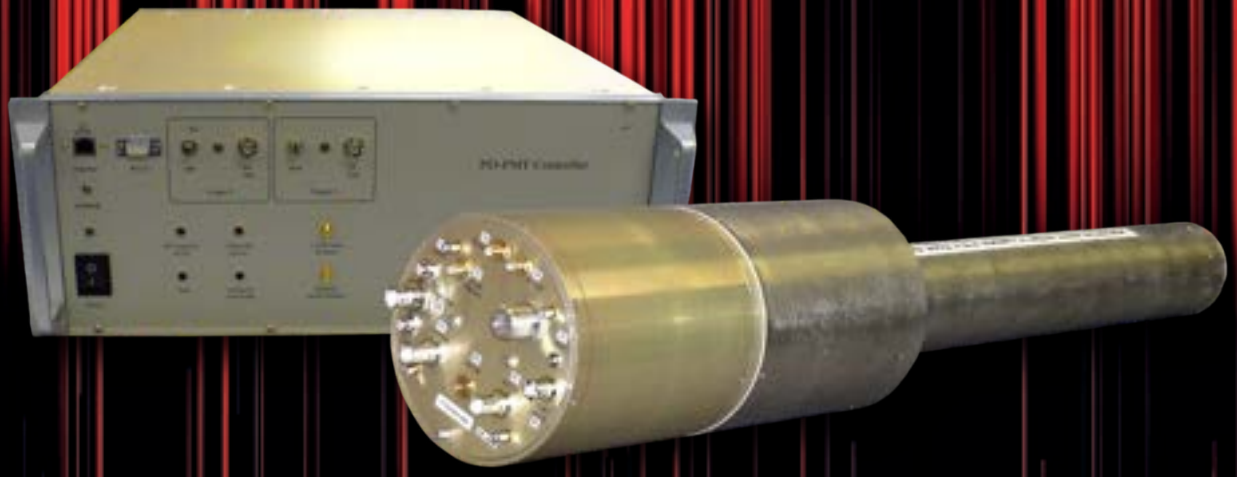
SYDOR TECHNOLOGIES



PULSE DILATION-PHOTOMULTIPLIER TUBE

COMPLEX MEASUREMENTS—CRITICAL RESULTS

FEATURES

- Allows users to have increased temporal response by applying unity temporal magnification
- Enables use with slower and less costly oscilloscopes
- Detector and electronics provided as turnkey solution

APPLICATIONS

- Cherenkov Measurements
- Gamma Radiation History
- Time of Flight
- Luminescence

ABOUT THE PULSE-DILATION PHOTOMULTIPLIER TUBE (PD-PMT)

With the Sydor Pulse-Dilation Photomultiplier Tube (PD-PMT), a signal can be detected at the device's photocathode and be expanded temporally to a much longer signal at the anode. This Sydor exclusive technology allows users to detect with improved temporal resolution and utilize lower cost readout electronics.

The PD-PMT is an expansion upon photomultiplier tube technology enabling temporal resolutions below 10 ps. To accomplish better than 10 ps resolution, the PD-PMT depends on specialty high voltage pulsers, with precisely controlled ramps. The electronics drive a custom elongated photomultiplier tube and apply a pulse with a variable amplitude. The electrons are extracted at slower velocities over time, resulting in a temporal dilation. This information can be back-calculated to determine the electron's initial launch time.

The ruggedized tube makes the PD-PMT ideal for use in settings that are not conducive to the use of traditional high-speed solutions, such as high electromagnetic energy or high shock environments.

Whether based in a national laboratory, research institute, or university, this technique is a great solution for problems requiring the best possible temporal resolution.

PRODUCT SPECIFICATIONS

- Photocathode Material: S20
- Drift Tube: 50 cm, customizable
- Dilation Factor: 1-40x
- Solenoid Magnet within PMT: 13 mT
- Maximum Repetition Rate: 10 Hz
- Ramps: Selectable
- Jitter: ≤ 20 ps RMS
- Triggers: BNC ~5V into 50 Ω, <5 ns rise
- Electronics Size & Weight: 4U (H) x 84 HP (W) x 500 mm (D) ~16 kg