

## Sydor Pulse-Dilation Photomultiplier Tube

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.

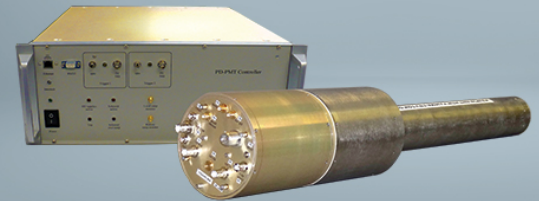
The PD-PMT is an expansion upon photomultiplier tube technology enabling temporal resolutions below 10 ps. To accomplish better than 10 ps resolution, the PD-PMT depends on specialty high voltage pulsers, with precisely controlled ramps. The electronics drive a custom elongated photomultiplier tube and 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:**  $\leq 20$  ps RMS
- **Triggers:** BNC  $\sim 5V$  into  $50 \Omega$ ,  $<5$  ns rise
- **Electronics Size & Weight:** 4U (H) x 84 HP (W) x 500 mm (D),  $\sim 16$  kg



### 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
- ⊕ Remote operation capable to separate sensitive readout electronics from experiment

### Applications:

- ⊕ Cherenkov measurements
- ⊕ Gamma Radiation History
- ⊕ Time of Flight
- ⊕ Luminescence

