

# Infrared Single Photon Counter

## WT-SPD300-TFX



### General

This is a single photon level weak signal detection instrument. It plays an indispensable role in some technology fields such as quantum optics, biological optics, laser ranging, etc. Recent years, the single photon counter is further applied in the field of quantum cryptography, and becomes the core device of quantum signal photoelectric conversion.

WT-SPD series infrared single photon counter was generated in the process of quantum cryptography communication system research. It enjoys low dark count rate, low-cost and high stability. Series of cutting-edge technologies were used, such as gating control, dead time restrain, noise reduction and afterpulse suppression etc. The instrument use Geiger mode InGaAs/InP avalanche diode as photosensitive element, our original new scheme of differential filtering technology further reduces the dark count rate while maintaining the high detection efficiency.

### Application

- Quantum key distribution
- Laser ranging
- Atmosphere and water environment detection
- Quantum optics, biological optics
- Non-destructive substance analysis
- Fluorescence spectrum

### Key Features

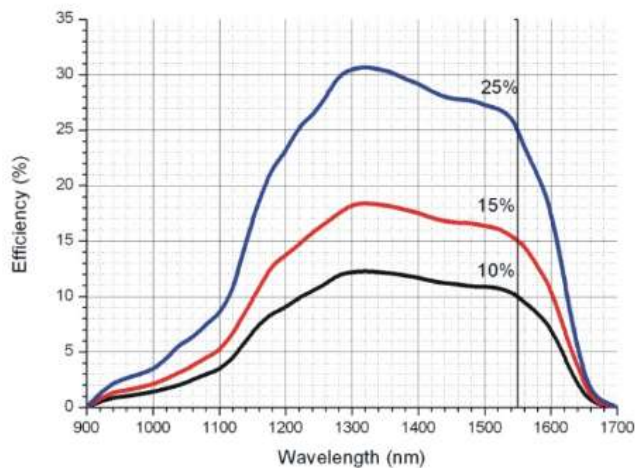
- Ultra-low dark counting rate:  $<2 \times 10^{-6}$  (@1ns gate width, 20% detection efficiency, 100MHz trigger frequency)
- Multi-trigger mode: LVTTTL, LVPECL, NECL, CML, LVDS, NIM and self-definition etc.
- High stability design: internal constant temperature controlled, reduce influence of temperature drifting
- Auxiliary counter: support counting of various common level signal

	Specification	Unit
Wavelength Range	950~1650	nm
Internal trigger delay time range	0~20	ns
Max Trigger frequency	100	MHz
Detection Efficiency	10~25	%
Gate width	1/2/3	ns
Deadtime range	0~100	us
Adjustable Delay Time	0~20	ns
Afterpulse	≤ 3	%
Delay time drift(temperature)	< 50	ps
Cool down time	≤ 6	min
Working temperature range	5~35	°C
Dimension (W×H×D)	275×138×354	mm
Power Source	100~240	VAC
Power Consumption	≤ 75	W

## Specification of Dark Count Rate

(Trigger frequency=100MHz, Gate width=1ns, Deadtime =0us)

Part Number	10% Detection Efficiency	20% Detection Efficiency
WT-SPD300-TFX	$< 5 \times 10^{-7}$	$< 2 \times 10^{-6}$



Wavelength – Photon  
Detection Efficiency curve